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CORPORATE DIVERSIFICATION AROUND THE WORLD

- Determinants and trends

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CORPORATE DIVERSIFICATION AROUND THE WORLD – DETERMINANTS AND TRENDS

TUTKIELMAN TAVOITTEET

Tämän tutkielman päätavoitteena on kattava kansainvälinen tutkimus yritysdiversifikaation eli yrityksen sisäisen toimialahajautuksen selittäjistä ja trendeistä. Käyn ensin lyhyesti läpi aiheeseen liittyvän aiemman kirjallisuuden. Käyttäen laajaa tietokantaa tutkin tämän jälkeen empiirisesti, mitkä tekijät selittävät diversifikaatioeroja yritysten välillä. Tutkin samalla myös keskimääräistä yritysdiversifikaatiota 45 maassa ja pyrin löytämään selittäjiä maiden välisille eroille. Lopuksi käytän yritystason segmenttiaineistoa vuosilta 1997-2001 ja tutkin kansainvälisiä yritysdiversifikaatiotrendejä.

AINEISTO

Tutkielman empiirisen osan aineisto koostuu 12571 yrityksestä 45 eri maassa. Suurin osa yritystason aineistosta on peräisin Worldscope-tietokannasta (maaliskuu 2003). Yksityistetyt yritykset tunnistetaan Megginsonin (2000) keräämän aineiston perusteella. Maatason muuttujat saadaan useista eri lähteistä, kuten aikaisemmasta akateemisesta tutkimuksesta, Maailmanpankista sekä useista kansallisista lähteistä.

TULOKSET

Diversifikaatio on yleistä: 60 prosenttia otosyrityksistä toimii ainakin kahdella toisiinsa liittymättömällä alalla. Korkea yritystason diversifikaatio on yhteydessä heikkoihin investointimahdollisuuksiin, matalaan kannattavuuteen, hajautuneeseen ei-valtiolliseen omistukseen ja heikkoon läpinäkyvyyteen. Osakeoptiot eivät näyttäisi selittävän yritystason diversifikaatiostrategioita.

Yritykset Itä-Euroopassa, Kaakkois-Aasiassa ja saksankielisissä maissa diversifioivat selvästi enemmän kuin yritykset englanninkielisissä maissa. Korkea maatason diversifikaatio on yhteydessä nopeaan bruttokansantuotteen kasvuun, tuloksen manipuloinnin yleisyyteen ja heikkoon lainsäädännölliseen sijoittajansuojaan.

Vuosikymmeniä jatkunut trendi kohti fokusoitunutta yritystoimintaa näyttää päättyneen tarkastelujaksolla ja jopa kääntyneen trendiksi kohti korkeampaa diversifikaatiota. Tilastollinen harha (survival bias) saattaa kuitenkin aiheuttaa tämän tuloksen.

AVAINSANAT

Yritysdiversifikaatio, toimialahajautus, corporate governance, agenttiteoria

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OBJECTIVES OF THE STUDY

The main objective of this thesis is to provide a comprehensive study of international corporate diversification levels, determinants, and trends. To achieve this objective I first review the relevant literature. Using a large dataset, I next study the firm-level determinants of corporate diversification empirically. Third, I consider the average corporate diversification levels in 45 countries and examine the determinants of cross-country differences. Finally, I use firm-level industry segment data from 1997-2001 and study international corporate diversification trends.

DATA

The data in the empirical part of the thesis consists of 12,571 firms in 45 countries. Most firm-level data are obtained from the Worldscope database (March 2002 edition). Privatized firms are identified using a dataset gathered by Megginson (2000). Data for the country-level variables are obtained from several sources such as previous academic research, World Bank, and several national sources.

RESULTS

Diversification is prevalent across the sample firms: 60 percent operate in at least two unrelated SIC segments. High firm-level corporate diversification is associated with poor investment opportunities, low profitability, dispersed non-state ownership, and poor transparency. Managerial incentives in the form of stock options do not play a role in explaining firm-level diversification policies.

Firms in Eastern Europe, Southeast Asia, and German-speaking countries tend to diversify considerably more than firms in English-speaking countries. High country-level diversification is associated with high GDP growth, high prevalence of earnings management, and inferior legal investor protection. However, the country-level results are generally quite weak.

The decades-long trend toward corporate focus seems to have ended and possibly reversed into a trend toward increased diversification in the sample period. However, this result may be driven by survival bias.

KEYWORDS

Corporate diversification, diversification, corporate governance, agency theory

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1. INTRODUCTION

1.1. Background

Diversification is a central concept in finance. In financial markets and investment theory, diversification usually refers to portfolio diversification of individual investors, i.e. the allocation of their investment wealth to different asset classes, industrial segments, geographical areas, and individual securities. The main effect of portfolio diversification is well known: an investor can and should use diversification to improve the risk-return profile of his portfolio. Hence, for investors operating in financial markets, diversification is generally a positive thing.

In corporate finance, diversification has a slightly different meaning. Corporate diversification concentrates on individual firms' investment portfolios instead of those of "outside" investors. A diversified firm can be simply defined as one that operates in more than one industrial segment. While an industrial segment can be defined in several different ways, the basic idea behind the concept remains the same. Hence, the analogy between investor and corporate diversification is that an individual outside investor is said to be diversified if his investment portfolio contains securities whose returns are not perfectly correlated, whereas a firm is considered industrially diversified when the earnings streams from the firm's different industrial segments are not perfectly correlated.

The decisions on the industry or industries a firm should enter are likely to convey important implications on the firm's operations, making corporate diversification one of the central concepts of corporate strategy. While the primary segment choice is usually more or less obvious from the firm's business plan, the decision to enter additional segments is often a more challenging one. If a firm seeks lower risk by reducing its dependency on a particular segment and hence reducing the variability of its earnings, entering additional industries can be a rational choice. Similarly, if a firm seeks to reduce its dependence on outside vendors and suppliers, it may decide to enter one or more vertically related industrial segments to produce the necessary inputs internally instead of purchasing them from outside firms. Finally, a firm may desire horizontal diversification, whereby it might be able to leverage its industry knowledge in closely related segments that might have similar success factors.

While corporate diversification may indeed be attractive for individual firms with special circumstances, the existing finance literature suggests that diversification as a general corporate strategy is likely to be detrimental to shareholder value. One of the reasons may be demand-related: investors do not appreciate diversified firms because they are able to diversify their portfolios by themselves and thus prefer single-segment companies that are simpler to understand. Additionally, the existing research generally suggests that diversified firms themselves are poor performers in terms of inefficient investment allocation, low productivity, and high agency costs. The arguments favoring extensive diversification programs thus usually lie on thin empirical ice.

Corporate governance issues have gained in importance during the recent years. The aftermath of the stock market and the mergers and acquisitions boom of the late 1990's have raised several concerns about the quality of the existing governance structures. Increased investor skepticism towards the validity and reliability of financial statements has imposed several regulatory programs around the world aiming at improving transparency. At the same time, many individual firms have employed improved disclosure and accounting standards to either regain or maintain their reputation. Corporate governance also lies at the heart of the corporate diversification theories. Agency problems have been shown to affect managers' ill-motivated diversification decisions and hence proper governance practices, having the potential to reduce agency problems, may have the effect of reducing corporate diversification and transforming the general attitude towards diversification policies less favorable.

1.2. Motivation and objectives

There are three ways in which this study potentially contributes to the existing literature. First, the existing research provides extensive evidence on the value effects of corporate diversification. The general consensus holds that firm-level diversification reduces shareholder value, and studies such as Berger and Ofek (1995) have inspired a vast amount of related research trying to explain the reasons behind the observed diversification discount. While these studies focus on firm-level determinants of the value effect and provide several possible explanations for the discount, they rarely attempt to explain what kinds of firms are more diversified than others in the first place. The first potential contribution of this study hence is that it focuses on the *level* of corporate diversification instead of the value effect that has already been extensively documented and debated. Studying the determinants behind

firm-level diversification policies may provide information that could even help companies and investors steer their firms in the desired direction.

The second potential contribution stems from the fact that similar to finance research in general, the vast majority of the corporate diversification literature has concentrated on the United States. The reason for this is obvious: the highly developed capital markets of the U.S. continuously produce huge amounts of reliable cross-section and time-series data. In recent years, data on other countries has started to emerge as well, both through the extensive manual efforts of individual scholars and the increasing sophistication and international coverage of commercial research databases such as Worldscope. Even though it seems intuitively obvious that international differences in corporate diversification levels exist, the few corporate diversification studies that use any international data concentrate on the value effects instead of diversification levels themselves. Hence, there is a potential opportunity for a contribution by using a comprehensive international dataset.

Third, although some research focusing on corporate diversification trends exists, the data used even in the most recent studies ends in 1997. Hence, using data from 1997 onwards provides an opportunity to examine whether the earlier observed trends have continued in the late 1990's and early 2000's. Furthermore, the existing studies again use only U.S. data and hence using an international dataset further enhances the potential contribution effect.

Summing up, I seek to contribute to the existing corporate diversification literature in three different ways. I use a large sample of firms and countries from the Worldscope database and seek to answer the following research questions:

1. What are the firm-level determinants of corporate diversification internationally?

2. How does the average level of corporate diversification vary across countries and what factors can explain the cross-country differences?

3. Was there an international trend in firm- and country-level corporate diversification during 1997-2001?

1.3. Structure

This study is structured as follows. Section 2 discusses the relevant literature covering central issues surrounding corporate governance, the value effects of corporate diversification, and previous evidence on corporate diversification trends. Section 3 develops the hypotheses on both firm- and country-level determinants of corporate diversification as well as corporate diversification trends in my sample period. Section 4 briefly explains the dataset and outlines the methodology used. Section 5 presents and discusses the empirical findings. Finally, Section 6 concludes.

2. LITERATURE REVIEW

This chapter discusses the existing literature in three important areas relating to this study: corporate governance, the value effects of corporate diversification, and previously documented corporate diversification trends. Corporate governance is central to finance as it deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment. Corporate governance practices have important implications on firms' strategies and investment policies, including diversification. The corporate diversification value effect literature is central in establishing an understanding on the benefits, drawbacks, and shareholder value implications associated with this organizational form. Finally, the evidence on previous corporate diversification trends is presented briefly.

2.1. Corporate governance

2.1.1. Definition

Corporate governance can be defined in several different ways. According to a 1997 Financial Times article[1],

> "Corporate governance...is defined narrowly as the relationship of a company to its shareholders or, more broadly, as its relationship to society..."

James D. Wolfensohn, president of the World Bank, has been quoted as saying[2],

> "Corporate governance is about promoting corporate fairness, transparency, and accountability."

OECD defines corporate governance in the following way[3]:

> "...corporate governance...involves a set of relationships between a company's management, its board, its shareholders, and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and

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[1] Financial Times, January 7, 1997
[2] Financial Times, June 21, 1999
[3] OECD Principles of Corporate Governance, 1999, available at www.oecd.org/dataoecd/47/50/4347646.pdf

the means of attaining those objectives and monitoring performance are determined. Good corporate governance should provide proper incentives for the board and management to pursue objectives that are in the interest of the company and shareholders and should facilitate effective monitoring, thereby encouraging firms to use resources more efficiently."

Finally, Shleifer and Vishny (1997) begin their comprehensive corporate governance survey by stating:

> "Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment."

Although the citations above are just examples of how corporate governance can be defined, they do contain the basic ideas on which the concept is based. From a finance perspective, corporate governance can be seen as a mechanism directing the allocation and use of control and cash-flow rights within a firm. The basic concern behind any governance system is how to make sure that managers do not steal the capital supplied or invest it in bad projects, and how to get corporate managers to return at least some of the profits to the suppliers of finance. Hence, a cynical view holds that corporate governance is to a large extent a set of mechanisms through which outside investors protect themselves against expropriation by the insiders such as corporate managers. Central to this view is the agency problem described by Jensen and Meckling (1976) and the ways it can be alleviated, including legal investor protection, ownership concentration, and more specific arrangements such as LBOs (leveraged buy-out organizations).

2.1.2. Agency theory

The most straightforward view on corporate governance is the agency perspective, often referred to as the separation of ownership and control. The agency problem in its basic context refers to the difficulties financiers face in assuring that their funds are not expropriated or wasted on unattractive projects by corporate managers. To alleviate the prospect of expropriation, the financiers and the manager sign a contract that specifies what the manager does with the funds, and how the returns are divided between him and the financiers. However, since a complete contract – a contract that specifies exactly what the manager does in all states of the world – is in practice impossible to design, the manager and

the financier need to allocate residual control rights, i.e. the rights to make decisions in circumstances not fully foreseen by the contract (Grossman and Hart (1986) and Hart and Moore (1990)). Since the financiers are not qualified or informed enough to decide what to do if something unexpected happens, managers must possess most of the residual control rights. The effective residual control rights of the managers are further enhanced by the fact that individual investors face a free rider problem that makes it uninteresting for them to participate in the governance of the firms they have financed. Further, in countries where the role of courts is not important, managers end up with much more extensive residual control rights than they will elsewhere, because courts will only get involved in massive violations of investors' rights by managers (Shleifer and Vishny (1997)). In any case, then, managers end up with significant discretion over how to allocate investors' funds. This may lead to situations where the manager uses his discretion in ways that are detrimental to the interests of the outside financiers, generating costs. These costs are known as agency costs.

Agency costs may manifest themselves in many different forms. Most simply, managers can divert corporate assets to themselves through outright theft, dilution of outside investors through share issues to insiders, excessive salaries, asset sales to themselves or to other corporations they control at favorable prices, or transfer pricing with other entities they control (see Shleifer and Vishny (1997) for a discussion). Alternatively, managers can use corporate assets to pursue investment strategies that yield them personal benefits of control, such as growth or diversification, without benefiting outside investors (e.g. Baumol (1959) and Jensen (1986)).

To reduce agency costs, well designed ex ante incentive contracts may help in aligning the interests of a manager with those of outside investors. The best way to do this may be to grant a manager a highly contingent, long-term contract in which the marginal value of the personal benefits of control rarely exceeds the marginal value of the manager's contingent compensation. The drawbacks are that such contracts may be expensive to design and implement, and that they may create enormous opportunities for self-dealing for the managers (including negotiating such contracts when they know that earnings or stock price are likely to rise, or manipulating accounting numbers to increase their pay). Incentive contracts may take many forms, including direct share ownership, stock options, or a threat of dismissal if income is low (Jensen and Meckling (1976) and Fama (1980)).

The empirical evidence on the existence of agency costs is compelling. For example, several event studies have documented clear evidence on agency problems from acquisition announcements. For example, the studies show that bidder returns on the announcement of acquisitions are often negative (see Roll (1986) for a survey). Also, Lewellen, Loderer, and Rosenfeld (1985) find that negative returns are more common for bidders in which their managers hold little equity, suggesting that agency problems can be reduced with proper incentives. Additionally, Lang, Stulz, and Walkling (1991) find that bidder returns are the lowest among firms with low Tobin's q and high cash flows. This result supports Jensen's (1986) version of agency theory, in which the worst agency problems occur in firms with poor investment opportunities and excess cash. Finally, diversification and growth are among the most commonly cited managerial (as opposed to shareholder) objectives, even though bidder returns tend to be lowest when bidders diversify or when they buy rapidly growing firms (see, e.g. Morck, Shleifer, and Vishny (1990))[4]. Clear evidence of agency costs is also revealed by studies that focus on management resistance to takeovers, i.e. managers threatened with the loss of private benefits of control. For instance, Walkling and Long (1984) find that managerial resistance to value-increasing takeovers is less likely when top managers have a direct financial interest in the deal via share ownership or golden parachutes, or when top managers are more likely to keep their jobs. The evidence suggests that managers resist takeovers to protect their private benefits of control rather than to serve shareholders.

Taking the existing theoretical and empirical evidence together, the agency problem is serious and lies at the heart of corporate governance. Perhaps the most prominent vehicles available to alleviate general agency costs include legal investor protection and ownership concentration, and thus these issues are discussed in the following two sections.

2.1.3. Legal investor protection

One of the principal remedies to agency problems is the law. Corporate and other laws give outside investors, including shareholders, certain powers to protect their investment against expropriation by insiders. These powers in the case of shareholders range from the right to receive the same per share dividend as the insiders, to the right to vote on important corporate matters (such as the election of directors), and to the right to sue the company for damages.

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[4] For more evidence on the adverse value effects of diversification, see section 2.2.3.

The fact that this legal protection exists most likely explains why becoming a minority shareholder is a viable investment strategy to begin with.

As documented by La Porta et al. (1998), the extent of legal protection of outside investors differs enormously across countries. Legal protection consists of both the content of the laws and the quality of their enforcement. Some countries, including most notably the wealthy common law countries such as the United States and the United Kingdom, provide effective protection of minority shareholders so that the outright expropriation of corporate assets by the insiders is rare. In many other countries, the condition of outside investors is much worse. However, even in these countries some protection usually exists. La Porta et al. (1998) study legal investor protection across a large sample of countries and find that civil law countries, especially of French origin, have the weakest investor protection against expropriation by insiders, especially as compared to common law, or English-origin, countries. German and Scandinavian civil law countries stand somewhere in the middle. The property rights indices constructed by The Heritage Foundation in former socialist countries suggest that legal investor protection may be weak in these countries as well[5].

The quality of investor protection, viewed as a proxy for lower agency costs, has been shown to matter for a number of important issues in corporate finance. For example, higher legal investor protection is associated with more dispersed ownership (La Porta et al. (1998)), higher dividend payouts (La Porta et al. (2000a)), lower private benefits of control (Zingales (1994) and Nenova (2003)), and more valuable and broad financial markets (La Porta et al. (1997), Demirguc-Kunt and Maksimovic (1998), Claessens et al. (2002b), and La Porta et al. (2002)). Finally, there is some evidence that good investor protection contributes to the efficiency of resource allocation and to economic growth more generally (Levine and Zervos (1998) and Rajan and Zingales (1995)).

2.1.4. Ownership concentration

When control rights are concentrated in the hands of a small number of investors with a collectively large cash flow stake, mutual action by investors is much easier than when control rights are split among many of them. In particular, this action is possible with only

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[5] For more information, check The Heritage Foundation's 2003 Index of Economic Freedom at www.heritage.org/research/features/index/.

minimal help from the courts and hence concentration of ownership effectively leverages up legal protection (Shleifer and Vishny (1997)). La Porta et al. (1998) extend the argument by stating that concentrated ownership acts as a substitute mechanism for poor investor protection. An important note, however, is that because large shareholders govern by exercising their voting rights, their power depends largely on the degree of legal protection of their votes. For this reason, large minority share holdings may only be effective in countries with relatively sophisticated legal systems, whereas countries where courts are weak are more likely to have outright majority ownership (i.e. ownership exceeding 50 percent of the votes). Large creditors such as banks are in many ways similar to large shareholders, and their effectiveness also depends on the legal rights they have.

The most direct way to align cash flow and control rights of outside investors is to concentrate share holdings. A substantial minority shareholder has the incentive to collect information and monitor the management, avoiding the free rider problem mentioned above. He also has enough voting control to put pressure on the management in some cases, or perhaps even to oust the management through a proxy fight or a takeover (Shleifer and Vishny (1986)). Of course, large shareholders with a 51 percent or more ownership have outright control of the firms and their management. Large shareholders thus address the agency problem in that they both have a general interest in profit maximization, and enough control over the assets of the firm to have their interests respected. In the United States, the United Kingdom, Canada, and Australia, where ownership of large corporations is relatively dispersed, most large corporations are to a significant extent controlled by their managers. In most other countries, large firms typically have shareholders that own a significant fraction of equity, such as the founding families (La Porta, Lopez-de-Silanez, and Shleifer (1999)). Heavily concentrated share holdings and a predominance of controlling ownership seem to be the rule in most countries around the world (Shleifer and Vishny (1997)).

The existing empirical evidence supports the view that large shareholders play an active role in corporate governance (Shleifer and Vishny (1986)). For instance, Franks and Mayer (1997) find that large shareholders are associated with higher turnover of directors. Kang and Shivdasani (1995) show that firms with large shareholders are more likely to replace managers in response to poor performance than firms without them. Also, Denis and Serrano (1996) show that if a takeover is defeated, management turnover is higher in poorly performing firms that have blockholders. Consistent with the view that large shareholders can

prevent expropriation, Mitton (2002) finds that higher ownership concentration was associated with significantly better stock price performance during the East Asian financial crisis in 1997-1998. In the light of the evidence, concentrated ownership appears a very effective means in reducing agency problems. Controlling shareholders can effectively determine the decisions of the managers, and hence the problem of managerial control itself becomes less severe.

Despite their potential to reduce agency costs, large investors may also *introduce* agency costs themselves: the controlling shareholders can implement policies that benefit themselves at the expense of other stakeholders. Large investors may not be diversified, and hence they bear excessive risk (Demsetz and Lehn (1985)). However, the fact that ownership in companies is so concentrated almost everywhere around the world (La Porta, Lopez-de-Silanes, and Shleifer (1999)) suggests that lack of diversification is not too great a private cost for large investors to bear. Also, large investors represent their own interests, which may not coincide with the interests of other investors in the firm, or with the interests of employees and managers. In other words, large investors have the potential for expropriation at the cost of minority investors and other stakeholders. The very fact that in many countries shares with superior voting rights trade at a large premium (see, e.g. Zingales (1994) and Nenova (2003)) is evidence of significant private benefits of control that may come at the expense of minority shareholders or other stakeholders. Morck, Shleifer, and Vishny (1988) find that firm performance (as measured by Tobin's q) improves with higher manager and large shareholder ownership at first. However, as ownership gets beyond a certain point, the large owners gain nearly full effective control and are wealthy enough to prefer to use firms to generate private benefits of control that are not shared by minority shareholders. Thus there are costs associated with high ownership and entrenchment, just as with exceptionally dispersed ownership. Burkart, Gromb, and Panunzi (1997) provide a theoretical model, which suggests that tight control of large shareholders constitutes an ex ante expropriation threat that reduces managerial initiative and non-contractible investments. They also show that ownership concentration may conflict with performance-based incentive schemes.

From a corporate governance perspective, state firms are particularly problematic because they are a good example of concentrated ownership with no cash flow rights as the cash flow ownership is effectively dispersed among the taxpayers of the country. State ownership may be a viable form of governance where monopoly power, externalities, or distributional issues

raise concerns. In these cases, a social welfare argument may justify state ownership even in industrial firms. However, the existing empirical evidence indicates that state firms do not appear to serve public interest better than private firms do (see, e.g. Grossman and Krueger (1993)). Further, state firms are typically found extremely inefficient (e.g. Boycko, Shleifer, and Vishny (1995)) as well as burdened by costs of political control. State firms may also have other goals than simple profit maximization. State firms, then, seem to be packed with agency problems and other corporate governance flaws.

2.1.5. Leverage and agency costs

An essential feature of debt is that a failure by the borrower to adhere to the debt contract triggers the transfer of some control rights from him to the lender. Aghion and Bolton (1992) use incomplete contract theory to characterize debt as an instrument whose holders take control of the firm in bad states of the world. Hart and Moore (1998) model the idea that debt is a contract that gives the creditor the right to repossess collateral in case of default. Fear of liquidation keeps money flowing from the debtors to the creditors. In Grossman and Hart (1982), default enables creditors to deprive the manager of the benefits of control. In sum, debt should prevent managers from investing in negative net present value projects, or forcing them to sell assets that are worth more in alternative use. Hence, debt may effectively reduce agency costs. Some direct evidence supporting this view can be found in studies examining leveraged buy-out, or LBO, organizations. LBOs are packed with debt and thus Kaplan's (1989) finding that these organizations increase profits provides direct evidence that higher debt levels may be associated with lower agency costs.

2.2. Value effects of corporate diversification

Finance theory predicts that corporate diversification has both value-enhancing and value-reducing effects.

2.2.1. Potential benefits

Several potential benefits of corporate diversification have been argued in related research. Traditional justifications for diversification include managerial and production- or marketing-related economies of scale and scope, higher debt capacity, and financial synergies such as value-creating internal capital markets.

Economies of scale and scope

Chandler (1977) argues that, because multi-segment firms create a level of management coordinating specialized divisions, they are inherently more efficient and hence more profitable than those divisions would be separately. Wernerfelt and Montgomery (1988) propose gains from diversification based on the presence of firm-specific assets, which can be exploited in other markets through production and marketing synergies.

Higher debt capacity

The potentially greater debt capacity of diversified firms arises from combining businesses with imperfectly correlated earnings streams as earnings streams from different lines of business provide a form of coinsurance (Lewellen (1971)). Increased debt capacity creates value by increasing interest tax shields, and hence diversified firms may have lower tax payments than their businesses would show if they operated separately. A further tax advantage arises from the tax code's asymmetric treatment of gains and losses in most countries. Focused firms may be at a tax disadvantage because tax is paid to the government when income is positive, but the government does not pay the firm when income is negative. Naturally, the tax code's carryback and carryforward provisions reduce this disadvantage, however they do not eliminate it. This idea (introduced by Majd and Myers (1987)) contains that, as long as one or more segments of a conglomerate firm experience losses in a certain year, the conglomerate pays less taxes than its segments would pay separately.

Internal capital markets: efficient investment allocation

The potential for an efficiency-enhancing role for internal capital markets in the capital allocation process was initially described by Alchian (1969) and Williamson (1970), who suggest that the managers of a firm have information and monitoring advantages that the external capital markets do not possess[6]. Consequently, firms could reallocate resources more efficiently because of greater and cheaper information and hence provide headquarters with valuable flexibility to move funds from less desirable investments to more desirable ones. These ideas have been later refined by e.g. Gertner, Scharfstein, and Stein (1994) who suggest

[6] Both papers simply assume that headquarters is more informed and will monitor more because the external capital market is comprised of many small investors, none of whom have an incentive to become informed. A pitfall in this reasoning is that if the external capital is supplied by large investors, they should have the incentive to become informed and to monitor.

that internal capital markets differ from external capital markets because the internal markets provide senior managers with residual rights of control over the firm's assets. These control rights in turn provide the senior managers with increased monitoring incentives as they get more gains from monitoring. Stein (1997) extends this argument to a case in which headquarters faces costly external finance arising from an agency problem between itself and external capital markets. When both headquarters and project managers derive private benefits that increase with the resources under their control, less-informed external markets place binding credit constraints to curtail these agents from overinvestment. Internal capital markets hence create value by "picking winners", that is, shifting resources across projects.

Williamson (1986) argues that internal capital markets can dominate external capital markets by allowing a better allocation of capital across competing uses, better sharing of inside information, and better post-investment control. Managers can broaden their internal capital market and gain these economies by diversifying. Furthermore, by relying on inter-segment transfers of cash, diversified firms can limit their reliance upon and interaction with external capital markets. Similarly, Weston (1970) states that resource allocation is more efficient in internal than in external capital markets and therefore firms should diversify to create a larger internal capital market. Matsusaka and Nanda (2002) suggest that diversification can be value-enhancing because an internal capital market allows firms to avoid external financing in more states of the world. Stulz (1990) argues that the volatility-reducing nature of corporate diversification and large internal capital markets help firms determine their optimal capital structure and hence balance the costs of overinvestment due to too little debt (Jensen (1986)) as well as the costs of underinvestment due to too much debt (Myers (1977)).

Other potential benefits

Khanna and Palepu (2000) emphasize the gains that arise from the ability of diversified firms to internalize market failures in developing countries. Hadlock, Ryngaert, and Thomas (2001) and Thomas (2002) draw on the work by Subrahmanyam (1991) and Gorton and Pennachi (1993) on security baskets and argue that if the errors the market makes in valuing unrelated divisions of a firm are imperfectly correlated, the absolute value of the percentage error in the market's pricing of a firm's stock should generally be smaller for a diversified firm than it is for a focused firm. Consequently, the adverse selection problem facing equity issuers may be smaller for diversified firms relative to focused firms and hence diversification may improve access to the market for external capital.

2.2.2. Potential drawbacks

Diversification can also create several costs, such as poor functioning of internal capital markets or high agency costs. One should note that these two are to some extent intertwined: internal capital markets may not work properly *because of* agency problems. However, for simplicity both are discussed separately below.

Internal capital markets: poor investment allocation

Stulz (1990) argues that diversified firms will invest too much in lines of business with poor investment opportunities. Jensen's (1986) argument that managers of firms with unused borrowing power and large free cash flows are more likely to undertake value-decreasing investments has a similar implication. To the extent that lines of business have access to more free cash flow as part of a diversified firm than on their own, Jensen's argument predicts that diversified firms will invest more in negative net present value projects than their segments would if operated independently. Meyer, Milgrom, and Roberts (1992) make a related argument regarding the cross-subsidization of failing business segments: since a failing business segment can have a negative value if it is part of a conglomerate that provides cross-subsidies, unprofitable lines of business create greater value losses in conglomerates than they would as stand-alone firms.

Gertner, Scharfstein, and Stein (1994) show that internal capital markets reduce managerial incentives because, unlike external financing, divisional managers do not usually have control rights and might be subject to ex post opportunistic behavior. Scharfstein and Stein (2000) develop a two-tier model that draws on agency considerations and show how rent-seeking behavior on the part of division managers can subvert the workings of an internal capital market. One feature of their model is that it implies a kind of socialism in internal capital allocation, whereby weak divisions get subsidized by stronger ones, especially when there is a great deal of divergence in the strength of the divisions. Hence, one of the fundamental failings of the conglomerate form of organization seems to be its inability to put the weakest divisions on much-needed diets.

Agency costs

Several models predict that managers may pursue unrelated diversification even when it hurts shareholders. First, if managers themselves are not properly diversified, they may diversify

the holdings of the firm to reduce the risk to their human capital even when diversification offers few, if any, benefits to shareholders (Amihud and Lev (1981)). Second, to assure the survival and continuity of the firm even when shareholder wealth maximization would suggest shrinkage or liquidation, managers may try to enter new lines of business (Donaldson and Lorsch (1983)). Third, when poor performance of the firm threatens the manager's job, he has an incentive to enter new businesses at which he might be better. The increased diversification, in turn, entrenches the manager and makes it more costly to replace him (Shleifer and Vishny (1989)). Diversification may also benefit managers because of the power, prestige, and perquisites associated with managing a larger firm (Baumol (1967), Jensen (1986), and Stulz (1990)), because it improves their future career prospects as experience in running a more complex organization increases the labor market's perception of the manager's ability (Gibbons and Murphy (1992)), because running a diversified firm may increase their opportunities for skimming (Bertrand and Mullainathan (2001)), or because managerial compensation is positively related to diversification (Rose and Shepard (1997) and Schoar (2002)) and firm size in general (Jensen and Murphy (1990)). Managers may also suffer from hubris (Roll (1986)). Summing up, managers may be willing to overpay for targets outside the firm's industry, thereby reducing the wealth of their shareholders. They derive private benefits from diversification that exceed their private costs and will reduce diversification only if pressured to do so by internal or external monitoring mechanisms.

The explanations above can be summarized in two groups: managers diversify 1) to reduce their idiosyncratic risk, and 2) because they derive private benefits.

Other potential drawbacks

The difficulty of designing optimal incentive and compensation programs for managers of diversified firms generates costs of multisegment operations (Aron (1988) and Rotemberg and Saloner (1994)). Harris, Kriebel, and Raviv (1982) and Myerson (1982) discuss the information asymmetry costs that may arise between central management and divisional managers in decentralized firms. These costs are higher in conglomerates than in focused firms to the extent information is more dispersed within the firm. Diversification may also lead to power struggles between divisions (Rajan and Zingales (2000) and Rajan, Servaes, and Zingales (2000)).

2.2.3. Existing empirical evidence

The vast majority of the related research finds compelling evidence in favor of a cross-section diversification discount, i.e. evidence that diversified firms trade at lower market values than comparable single-segment firms (e.g. Montgomery and Wernerfelt (1988), Lang and Stulz (1994), Berger and Ofek (1995), Servaes (1996), Stein (1997), Claessens et al. (1999), Lins and Servaes (1999), Lins and Servaes (2000), Lamont and Polk (2002), and Schoar (2002)). Alternatively, increases in focus have been observed to be value-enhancing, and increases in diversification value-reducing (e.g. Klein (1986), Morck, Shleifer, and Vishny (1990), Liebeskind and Opler (1994), Comment and Jarrell (1995), John and Ofek (1995), Denis, Denis, and Sarin (1997), and Daley, Mehrotra, and Sivakumar (1997)). The case is especially strong for unrelated diversification (usually defined as business segments not included in the same 2-digit SIC classification code). Even studies documenting a diversification premium (e.g. Villalonga (2003)) acknowledge that the premium is likely to hold only for related diversification (business segments within the same 2-digit SIC code), not unrelated diversification. This is theoretically feasible: Rumelt (1974) argues that related diversification affects value more positively than unrelated diversification because skills and resources can be used in related markets. Similarly, Nayyar (1993) argues that benefits from a positive reputation in an existing business and from economies of scope are available from related but from unrelated diversification. Finally, when divisions are in related businesses, there is likely to be less informational asymmetry between divisions and headquarters (Khanna and Tice (2001)). Headquarters are better able to judge the relative performance of the different divisions, which in turn should lead to better capital allocation decisions.

2.2.4. What causes the diversification discount?

The diversification discount has several proposed explanations. As noted by Lamont and Polk (2002), these explanations are not always mutually exclusive. For example, it could be that low value firms choose to diversify and diversification then lowers their value further.

Failure to exploit the potential benefits of diversification

Diversified firms may fail to exploit the potential economic benefits of diversification discussed above in section 2.2.1. Especially, rent seeking by divisional managers can distort the functioning of internal capital markets, inducing corporate headquarters to allocate

excessive capital to divisions with poor investment opportunities where rent-seeking incentives are strongest. Hence, internal capital markets tend to cross-subsidize and overinvest in poorly performing business segments (e.g. Meyer, Milgrom, and Roberts (1992), Lang and Stulz (1994), Berger and Ofek (1995), Lamont (1997), Wulf (1997), Shin and Stulz (1998), Rajan, Servaes, and Zingales (2000), Scharfstein and Stein (2000), Lamont and Polk (2002), Gertner, Powers, and Scharfstein (2002), and Mitton (2002)). Since most corporate investment is typically financed with internally generated cash flow (MacKie-Mason (1990)), poor internal investment allocation has a potential to destroy large amounts of shareholder value.

Agency problems

Several studies provide direct or indirect support for the hypothesis that agency problems are at least partly responsible for firms remaining diversified when an increase in corporate focus would be the value-maximizing strategy (e.g. Baumol (1967), Amihud and Lev (1981), Donaldson and Lorsch (1983), Jensen (1986), Shleifer and Vishny (1989), Stulz (1990), Lang and Stulz (1994), May (1995), and Denis, Denis, and Sarin (1997)). Moreover, the results of Denis et al. suggest that when the excess value of their diversified sample firms were significantly negative, the firms did not respond either quickly or voluntarily. These findings thus provide strong support for the agency cost hypothesis, as refocusing appears to represent external monitoring of managers. Maksimovic and Phillips (2002) also find some evidence indicating that conglomerates may have agency problems. Their view, however, is less straightforward than that of Denis et al. (1997). Aggarwal and Samwick (2003) provide evidence supporting the agency cost explanation as they find that managers diversify their firms in response to changes in private benefits of diversification rather than to reduce their exposure to firm-specific risk. Finally, Liebeskind and Opler (1994) find that private firms are less diversified than comparable public firms and attribute this finding to private firms having lower agency costs than public firms. However, they provide no direct evidence on this point.

Endogeneity of the diversification decision

Diversifying firms may already be poor performers before they diversify, and target companies may already trade at a discount prior to a diversifying acquisition (e.g. Lang and Stulz (1994), Berger and Ofek (1995), May (1995), Servaes (1996), Matsusaka (2001), Graham, Lemmon, and Wolf (2002), and Campa and Kedia (2002)). However, this

'endogenous diversification discount' (poorly performing firms *choose* to diversify) has not been shown to account for the entire magnitude of the discount.

Measurement error and reporting practices

The observed diversification discount may also result from managerial reporting practices or measurement error in either firm performance or diversification itself. Hayes and Lundholm (1996) suggest that segment reporting is often subject to strategic managerial motives. This would call into question the approach of defining corporate diversification strictly on the basis of the number of business segments (reported by the management). However, Graham, Lemmon, and Wolf (2002) do not find evidence supporting this view. Whited (2001) suggests that the documented inefficient investment in diversified firms might be an artifact of a systematic measurement error in Tobin's q and of the correlation between investment opportunities and liquidity. However, Lamont and Polk (2002) quantify the potential effect of measurement error and find it to be small. Fan and Lang (2000) develop and test new diversification measures and find that related diversification may reduce *or* increase firm value. Mansi and Reeb (2002) argue that the convention of using book values of debt in calculating diversification value effects may create a downward bias and exaggerate the magnitude of the discount. Similarly, Harris (1998) and Villalonga (2003) argue that Compustat segment data used in many diversification value effect studies are systematically biased in favor of finding a diversification discount. However, their evidence is not conclusive.

Alternative explanations

One hypothesis is that diversification was beneficial when adopted, but subsequent technological and regulatory shocks have made diversification less valuable than it was initially. Matsusaka (1993) finds evidence consistent with this idea.

Lamont and Polk (2001) suggest that diversified firms have expected future returns (instead of cash flows) that are different from the returns of single-segment firms. They find that within their sample of diversified firms, discount firms have higher subsequent returns than premium firms. They conclude that the diversification discount puzzle is, at least in part, an expected return phenomenon as well as an expected cash flow phenomenon. However, their estimates still leave plenty of room for wasteful spending or cross-subsidization to reduce cash flow, because they find a large role for variation in future cash flow.

Mansi and Reeb (2002) explore the source of the diversification value losses to shareholders and argue that they stem from the risk-reducing effects of corporate diversification. Viewed in a contingent claims framework, shareholder equity is analogous to a call option on the value of the firm exercised in those states where the value of the assets is greater than the value of the debt claim. Reducing the riskiness of the firm reduces the value of the call option and thereby increases bondholder value and decreases shareholder value. Consistent with this risk-reduction hypothesis, the authors find that the equity holder losses in diversification are related to firm leverage.

Schoar's (2002) results indicate that value destruction in diversified firms stem from the negative dynamic effects of diversification and rent dissipation in the form of higher wages. Schoar offers some suggestive evidence that conglomerates leave more rents to their workers and argues that under reasonable assumptions, this wage differential can account for about 30 percent of the discount. In other words, rent dissipation in the form of higher wages may help explain why conglomerates trade at a discount, overall suggesting that diversified firms are not bad per se, but diversification as a corporate strategy is. One can argue that pure redistribution does not need to be inefficient from a social welfare point of view as long as it does not lead to a distortion in the allocation of resources. From the point of view of existing shareholders, however, this behavior seems to be suboptimal.

2.2.5. Cross-country evidence

The effect of diversification on firm value may be different across countries. Especially, international differences in corporate governance may affect the impact of diversification on shareholder wealth, as documented by Lins and Servaes (1999). Their results for Germany, Japan, and the U.K. suggest that the value of diversification is related to the institutional structure of a country as they document a diversification discount in Japan and the U.K. but not in Germany. Lins and Servaes (2000) also document a diversification discount in a sample of firms in seven emerging markets. Collectively, these results suggest that the diversification discount first documented for U.S. firms is, if not universal, at least relatively prevalent around the world.

2.2.6. Conclusion

The existing evidence leads (with some reservations) to the conclusion that corporate diversification, at least in its unrelated form, is detrimental to shareholder value. Explanations for this effect include agency problems, failure to exploit the potential benefits of diversification (especially internal capital markets), endogeneity of the diversification discount, and erroneous reporting or measurement practices. While acknowledging the alternative hypotheses, the bulk of the evidence directly or indirectly supports one of the first two explanations, implying that corporate diversification as such is at least partly responsible for the observed diversification discount. While endogeneity, reporting practices, or measurement error may explain part of the discount, there is still significant room for value destruction stemming from the detrimental nature of diversification as a corporate strategy.

2.3. Corporate diversification trends

There is some evidence of a trend toward diversification in American companies over the period 1950-1970 (Ravenshaft and Scherer (1987)). The trend reversed in the late 1970's, and Comment and Jarrell (1995) and Liebeskind and Opler (1994) find that in the U.S. there was a clear trend toward corporate focus in the 1980's. Fan and Lang (2000) study the period 1979-1997 and document that both the vertical relatedness and the complementarity of firms have increased over time; in other words firms have focused their operations. Denis, Denis, and Yost (2002) use a large sample of firms and find that industrial diversification decreased over the period 1984-1997. Even so, they also document that most of the largest companies are still at least to some extent diversified.

Several possible reasons for this trend have been proposed. Shleifer and Vishny (1990) argue that the relaxation of antitrust enforcement in the early 1980's allowed firms to focus more on their core lines of business, thereby diminishing the value of industrial diversification. Liebeskind and Opler (1994) suggest that increased focus may have been necessitated by increases in global competition. Yet another view is that decreases in industrial diversification represent forced reversals of prior diversification mistakes (e.g. Jensen (1993)). Under this view, the active market for corporate control in the 1980's and enhanced corporate governance practices have limited the ability of managers to pursue value-reducing diversification strategies. Still another argument is that as capital markets have become increasingly efficient and transaction costs have decreased, the cost of portfolio

diversification has been reduced for investors, predicting a decrease in the value of corporate diversification.

3. HYPOTHESIS DEVELOPMENT

In this chapter, I present the hypotheses covering firm-specific and country-level determinants of corporate diversification as well as corporate diversification trends in the sample period 1997-2001.

3.1. Determinants of corporate diversification

3.1.1. Firm size

It is a trivial conclusion that diversified firms are on average bigger than single-segment firms (for empirical evidence, see e.g. Ferris and Sarin (2000)). Moreover, it is an interesting note that also the segments of diversified firms have been documented to be much bigger in sales and assets than comparable single-segment firms (Hubbard and Palia (1999)). I expect net sales to be positively associated with diversification both at the firm and country-level.

3.1.2. Capital structure

As discussed in section 2.2.1., combining businesses that have imperfectly correlated earnings streams reduces the variability of earnings for the combination. Reduced variability of earnings can hence increase a firm's debt capacity by reducing expected default rates. This claim, usually attributed to Lewellen (1971), predicts that diversified firms will use more debt because of the reduction in default rates that comes with diversification (also called coinsurance of corporate debt).

Another way to look at capital structure is to bear in mind the potential of debt in reducing agency problems as discussed earlier in section 2.1.6. Debt should prevent managers from investing in negative net present value projects, or force them to sell assets that are worth more in alternative use, i.e. increase corporate focus. Evidence supporting this view can be found, for example, in studies examining LBO organizations. Many LBOs are targeted at highly diversified firms, which then sell off many of their noncore divisions shortly after the LBO transaction (e.g. Bhagat, Shleifer and Vishny (1989)). Thus, if agency problems are responsible for firms remaining diversified, one could expect diversification to be associated with lower levels of corporate debt.

In sum, corporate debt levels may be associated with firm-level diversification, and similarly country-level diversification may be associated with the aggregate debt availability within a country. The direction of the associations, however, is ex ante unclear.

3.1.3. Investment opportunities and accounting performance

Focused firms improve performance by allowing managers to focus attention on the core operations they are best suited to manage. Although Teese (1982) argues that firms diversify in order to exploit excess capacity in some input factor, particularly management skills, the existing evidence clearly supports the idea that diversification dilutes investment opportunities and profitability. Wernerfelt and Montgomery (1988) find a positive relation between levels of focus and Tobin's q, a common proxy for investment opportunities. Lang and Stulz (1994) show that q and firm diversification were negatively related throughout the 1980's. Berger and Ofek (1995) find that segments of diversified firms have lower operating profitability than comparable single-line businesses. Daley, Mehrotra, and Sivakumar (1997) use U.S. spinoff data and find significant improvements in operating performance for cross-industry spinoffs. Analysis by Maksimovic and Phillips (2002) indicates that plants of conglomerate firms are less productive than are plants of comparable single-segment firms of similar size. Using manufacturing plant-level data from Longitudinal Research Database, Schoar (2002) finds that increases in diversification are associated with a decline in the firm's overall productivity. Finally, Aggarwal and Samwick (2003) find that firm performance is decreasing with diversification.

Drawing on the compelling empirical evidence, I expect diversified firms to exhibit lower levels of sales growth and operating margins. At the country-level, I proxy for general investment opportunities with historical four-year real GDP growth and expect it to be associated with lower average diversification levels.

3.1.4. Managerial incentives

The agency models discussed in section 2.2.2. imply that to minimize value-reducing diversification, managers should be given proper incentives in the form of direct equity ownership or stock options to align their personal cash-flow incentives with those of shareholders. Analysis by Murphy (1999) indicates that pay-performance sensitivities are

driven primarily by these two forms of compensation, and hence other incentive forms are unlikely to be important.

Even though direct managerial stock ownership provides the most direct link between shareholder and executive wealth, it may or may not work. As a manager bears a greater fraction of the costs associated with value-reducing actions he is less likely to adopt policies that reduce shareholder wealth. However, the manager may become encouraged to diversify more as the need to reduce his firm-specific risk increases. Also, the private benefits associated with managers' personal risk reduction are likely to increase with their equity ownership (Amihud and Lev (1981)). In line with the mixed theoretical predictions, empirical findings of the relationship between managerial equity ownership and corporate diversification are also mixed (see, e.g. Lewellen, Lodered, and Rosenfeld (1989), May (1995), Denis, Denis, and Sarin (1997), and Aggarwal and Samwick (2003)).

In contrast, stock options may be more effective in reducing undesired corporate diversification. Since the value of stock options increases with stock-price volatility, volatility-reducing diversification becomes unattractive for executives who are granted stock options. Hence, I expect to observe a negative firm-level relation between the use of stock options and corporate diversification.

3.1.5. Ownership structure

To the extent that outside blockholders provide monitoring benefits to firms, the agency cost hypothesis predicts a negative relation between diversification and the presence of these blockholders. Since there may be costs to large owners as well, however, the implications of ownership concentration to corporate diversification are not ex ante clear. Because large shareholders may want to diversify their firm-specific risk through their firms and because they may receive private benefits from diversification similar to those of corporate managers, concentrated ownership may also be associated with higher diversification.

State ownership may also explain corporate diversification[7], however the expected relationship is similarly ambiguous. On the one hand, corporate diversification may be more prevalent in state firms due to their potentially inferior corporate governance structures (see

[7] I am grateful to prof. Keloharju for suggesting this idea.

section 2.1.4.). On the other hand, many former and current state firms were originally set up to carry out a very specific function and hence they may actually be very focused on average. I proxy for state firms by using a privatization dummy whenever a firm has been privatized through a public share offering[8] and expect privatization to be associated with corporate diversification, direction being unclear.

3.1.6. Disclosure quality, analyst activity, and earnings management

Disclosure quality

The accounting figures reported for focused firms are more informative than the accounting figures for diversified firms because of the aggregate nature of diversified firms' accounting reports. As long as segment-level reporting leaves managers with some discretion over cost allocations, it may be difficult for the market to accurately attribute earnings changes to a firm's different segments. Krishnaswami and Subramaniam (1999) report evidence consistent with this hypothesis based on samples of spinoffs. If the accounting figures of diversified firms are less transparent than those of focused firms, it is likely that asymmetric information problems are more severe for diversified firms than they are for focused firms.

The benefits of increased disclosure for both focused and diversified firms have been examined extensively in previous research (see, e.g. Diamond and Verrecchia (1991), Swaminathan (1991), Lang and Lundholm (1996), Piotroski (1999), and Mitton (2002)). The findings are consistent with the hypothesis of increased disclosure reducing information asymmetries. In addition to improving disclosure, managers can break up the conglomerate firm along industry lines into separately traded and operated entities to improve transparency. For instance, a frequently cited motivation for focus-increasing transactions and tracking stock issues is management's desire to make their companies easier for investors to evaluate. A direct implication of this argument is that the potential for information asymmetry between managers and outsiders is greater in diversified firms. Habib, Johnsen, and Naik (1997) and Nanda and Narayanan (1999) present models based on this idea. Accounting is also central to corporate governance as it may be difficult to assess management performance without reliable accounting standards. More broadly, cash flows may be very difficult to verify in

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[8] I utilize the comprehensive list of privatizations by Megginson (2000).

countries with poor accounting standards. Poor country-level accounting standards may hence worsen the transparency problem related to corporate diversification.

Based on the theoretical arguments and the existing empirical evidence, I expect diversification to decrease with proxies for disclosure quality such as a U.S. listing and U.S. Gaap accounting standards compliance at the firm level, and general national accounting standards at the country-level.

Analyst activity

As originally noted by Jensen and Meckling (1976) and later examined e.g. by Moyer, Chatfiled, and Sisneros (1989), the external monitoring provided by security analysts may help to reduce agency costs present within a firm. Such monitoring will motivate corporate managers to adopt value-enhancing projects since their decision-making will be closely followed and publicized. Thus the monitoring activity of security analysts may reduce the extent of overinvestment by managers in projects that enhance their wealth or human capital at the expense of shareholders. Bhushan (1989) argues that the cost of information acquisition is greater for multi-segment firms because of the increased number of business lines the analyst must follow. Relative to analyzing stand-alone firms, diversified firms may be harder to analyze if there is inadequate disclosure on the relationship and transactions between divisions or business lines. Therefore, analysts concerned about making forecast errors are less likely to follow diversified firms, as suggested in the case of group companies by Alford and Berger (1999). This argument implies that diversified firms would have fewer analysts following them than focused firms.

I expect higher corporate diversification to be associated with lower firm-level analyst following and lower country-level analyst activity. The existing empirical evidence generally supports this hypothesis (see, e.g. Dunn and Nathan (1998), Krishnaswami and Subramaniam (1999), Ferris and Sarin (2000), and Gilson et al. (2001)).

Earnings management

Insiders have incentives to conceal their private control benefits from outsiders because, if these benefits are detected, outsiders are likely to take disciplinary action against them (see, e.g. Zingales (1994) and Shleifer and Vishny (1997)). Accordingly, managers and controlling owners may have an incentive to mask true firm performance and to conceal their private

control benefits from outsiders. For example, insiders can use their financial reporting discretion to conceal losses that would potentially trigger outsider interference. Insiders can also use their accounting discretion to "smooth" earnings, i.e. create reserves for future periods by understating earnings in years of good performance and correspondingly overstate earnings in years of bad performance, effectively making reported earnings less variable than the firm's true economic performance would suggest. Leuz, Nanda, and Wysocki (2003) suggest that holding private benefits constant, strong investor protection might encourage earnings management because insiders have greater incentives to hide their control benefits when faced with higher penalties. However, their empirical evidence strongly suggests that this penalty effect is clearly dominated by international differences in private control benefits. Thus the negative relation between investor protection and earnings management prevails.

To the extent that diversified firms are less transparent than focused firms and that company insiders enjoy private benefits from diversification, I expect average diversification levels to be higher in countries where earnings management is more common. However, the link is relatively indirect in nature and hence potentially weak.

3.1.7. Capital market development

In less developed external capital markets, one might expect that the cost of external financing is high due to the lack of well-developed capital market institutions that have an expertise in gathering company-specific information. As capital markets develop in these markets, many firms can provide company-specific information to the capital markets directly and more easily bypass internal capital markets for investment funds, reducing the need for group affiliation and hence diversification.

A further point is that the absence of intermediary institutions makes it costly for emerging market firms to acquire necessary inputs such as finance, technology, and management talent. In this context, an enterprise may be most profitably pursued as a large diversified corporation that can act as an intermediary between its business lines and imperfect markets. For example, these firms can use their track record and reputation among suppliers and customers in their established lines of business to gain credibility for new ventures. More generally, the scale and scope of diversified firms or business groups could allow these firms to internally replicate the functions provided by stand-alone intermediary institutions in advanced economies. These firms, therefore, can benefit from access to these internal institutions to

mitigate external market failures. Khanna and Palepu (2000) provide evidence on this point and suggest that the most diversified groups add value by replicating the functions of the institutions that are missing. The largest groups have the scope and scale to justify the fixed costs needed to create the internal structures and processes for performing the intermediating function. One interpretation of their results is that the payoff from such intermediation is sufficiently large to offset both the costs of creating the structures and the agency costs of diversification. Another interpretation is that the largest and most diversified businesses are able to derive economic benefits because of their political connections in an economy where government regulation plays an important role. Case studies examining East Asian countries (see, e.g. Okumura (1993), Taniura (1993), and Taylor (1998)) suggest that these benefits may include exclusive exporting or importing rights, protection from foreign competition for extended periods of time, granting of monopoly power in the local market, or procurement of large government contracts. This evidence implies that diversification (and hence larger firm size) may be attractive in less developed economies.

In sum, developed capital markets can be expected to be associated with lower diversification levels. Previous research generally supports this view (see, e.g. Bhide (1990), Hubbard and Palia (1999), Subrahmanyam and Titman (1999), and De Motta (2003)).

3.1.8. Legal system and investor protection

Poor legal investor protection makes it easier for managers to expropriate minority shareholders by making legal action against corporate executives difficult and costly and hence the corporate governance mechanism cannot work properly. This suggests that undesired corporate diversification may be more likely to prevail in countries with low legal investor protection. Another way to think about legal protection of outside investors is that it makes the expropriation technology less efficient. When investor protection is very good, the most insiders can do (instead of outright theft) is overpay themselves, put relatives in management, and undertake some wasteful projects (La Porta et al. (2000b)). As the diversion technology becomes less efficient, the insiders expropriate less, and their private benefits of control diminish. This argument, although lacking empirical support, suggests that corporate diversification might substitute for more direct forms of expropriation and hence be more prevalent in countries with good, instead of poor, legal protection.

Drawing on these arguments, I expect diversification to be less prevalent in countries with high levels of legal investor protection, such as English-origin common law countries. However, I acknowledge that there is a chance that the relationship may actually be the other way around, with diversification acting as a substitution mechanism for more direct expropriation practices.

3.1.9. Culture

Culture in general, as opposed to legal systems, may have implications on corporate governance. For instance, La Porta et al. (1999) document that government performance across countries is affected by cultural factors, among others. However, they also note that legal origins and cultural factors, such as religious affiliations, are often strongly correlated with each other.

From a diversification perspective, Hofstede's (1991) uncertainty avoidance index is an especially interesting cultural variable as it refers to dealing with uncertainty and ambiguity. High uncertainty avoidance cultures emphasize beliefs, rules, and institutions that provide certainty and conformity. If uncertainty avoidance transfers into a lower general appetite for risk, then a possible implication of high uncertainty avoidance may be high country-level corporate diversification levels because diversification lowers firm-specific risk. Hence, I expect high uncertainty avoidance to be associated with high average corporate diversification levels.

3.1.10. Summary

Hypotheses covering the potential determinants of corporate diversification developed above are summarized in Table 1.

Table 1

Determinants of corporate diversification: hypotheses summary

This table presents a summary of the hypotheses developed in section 3.1. Each explanatory variable group is listed, followed by the individual variables and the expected coefficient signs in the related regressions. The individual variables are defined in Table A1.

	Expected sign	
Variables	Firm-level analysis	Country-level analysis
Firm size		
Ln (Net sales)	+	
Ln (Mean net sales)		+
Capital structure		
Debt / assets	- / +	
Debt / GNP		- / +
Investment opportunities and performance		
Sales growth	-	
GDP growth		-
Operating margin	-	
Managerial incentives		
Stock options dummy	-	
Ownership structure		
Block dummy 20%	- / +	
Control rights of the controlling shareholder		- / +
Privatized firm dummy	- / +	
Disclosure quality, analyst activity, and earnings management		
US exchange dummy	-	
US Gaap dummy	-	
Accounting standards		-
Analysts	-	
Analyst activity		-
Earnings management		+
Capital market development		
Market Cap / GDP		-
Legal system and investor protection		
English legal origin		-
Shareholder rights		-
Culture		
Uncertainty avoidance		+

3.2. Global trends in corporate diversification 1997-2001

As discussed earlier in section 2.3., there has been a long trend toward corporate focus in the United States. Anecdotal evidence from the financial press suggests that corporate focus has maintained its importance as a corporate strategy also in the late 1990's and early 2000's. However, it may well be that the trend has slowed down or even ended altogether. For example, it may be that the mergers and acquisitions spree of the late 1990's may have led to higher average diversification in many countries as firms have sought growth via unrelated acquisitions. Also, it may well be that the recent corporate scandals in the United States and Europe are merely a reflection of broader corporate governance problems that prevailed globally in the sample period, again implying potentially higher average diversification levels. In sum, it is difficult to predict whether the trend toward focus has continued in my sample period 1997-2001.

4. DATA AND METHODOLOGY

In this chapter, I first describe the dataset and the sample selection procedure used in the empirical part of this study. Second, I outline the methodology employed, including alternative corporate diversification measures, the logit regression model, and the basic idea behind the descriptive corporate diversification trend analysis.

4.1. Data and sample selection

The cross-section analysis of this study is based on firms in the March 2002 edition of the Worldscope database, which contains financial information about approximately 28,000 companies in 53 countries. The information provided in this edition is generally gathered from financial statements in 2001 and hence my analysis is effectively a cross-section of the fiscal year end situation in 2001. The trend analysis is based on additional Worldscope editions from years 1998-2001, together with the 2002 edition enabling an analysis on the period 1997-2001.

The information set for each company includes one or more four-digit Standard Industrial Classification (SIC) codes specifying the industrial segment or segments in which the company operates. Each company is assigned a primary SIC code indicating the segment that generates most of the firm's revenues, and one or more secondary SIC codes for other segments in cases where the company operates in more than one industrial sector. The first two digits of each SIC code indicate the major industrial group and the remaining two digits specify the industry within that group. For example, 10 corresponds to metal mining and 80 to health services, whereas 1041 corresponds to gold ores and 8072 to dental laboratories[9].

Data for my explanatory variables are gathered from several sources. Apart from Worldscope, additional sources include various academic studies, reports and indexes published by international organizations such as World Bank, and several national sources. All the variables and their sources are summarized in Table A1 in Appendix.

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[9] For a general explanation of the SIC system, see e.g. www.osha.gov/cgi-bin/sic/sicser5.

Table 2
Construction of the basic sample

This table presents the procedure used in the selection of the basic sample of firms and countries.

Number of firms	
28,200	All firms in Worldscope
-7,235	Firms with net sales less than $20 million
-7,902	Firms with at least one public utility (SIC codes 4900-4949) or financial services (SIC codes 6000-6999) segment
-450	Firms with missing or defective SIC codes
-42	Firms in countries with less than 10 observations
12,571	
Number of countries	
53	All countries in Worldscope
-8	Countries with less than 10 eligible firms
45	

The sample selection procedure generally follows the existing literature, and is summarized in Table 2. I exclude firms with sales less than $20 million, firms with one or more public utilities or financial services SIC codes, and firms with missing or otherwise defective SIC codes. Also, since I exclude countries that end up with less than ten firms after this procedure, firms in the excluded countries are excluded as well. The final basic sample consists of 12,571 firms in 45 countries. However, the firms excluded on the basis of their home country having an insufficient number of observations will be included in my trend analysis, resulting in a sample of 12,613 firms for year 2001 in the trend part. One should note that many sample firms and countries are lacking data for either some diversification measures or explanatory variables (or both). For example, the asset-based Herfindahl index is available only for 4599 and the historical four-year real net sales growth rate for 8334 firms.

4.2. Methodology

4.2.1. Measuring corporate diversification

In prior research, several complementary measures have been used as proxies for corporate diversification. At the firm-level, I follow the existing literature and use the following five diversification measures:

1. The number of different two-digit SIC codes assigned to a firm by Worldscope.

2. The number of different four-digit SIC codes assigned to a firm by Worldscope.

3. The number of product segments reported in a firm's financial statements.

4. A sales-based Herfindahl index[10].

5. An asset-based Herfindahl index.

Table 3 documents the correlations between the alternative firm-level measures. As expected, the measures are highly correlated with each other. However, the table shows that these measures can be considered complementary with each other since most correlations are still far from being one. Although some criticism has been presented about the validity of many of these firm-level measures (see, e.g. Sambharya (2000), Fan and Lang (2000), and Villalonga (2003)), all of them are commonly used in the related literature.

Table 3

Firm-level correlations between alternative diversification measures

This table presents firm-level Spearman's rank correlation coefficients between five alternative diversification variables: the number of two-digit SIC codes, the number of four-digit SIC codes, the number of reported product segments, sales-based Herfindahl index, and asset-based Herfindahl index. N is the number of firms for which each variable pair was available.

Diversification variable	4-digit SIC codes	Product segments	Sales-based Herfindahl	Asset-based Herfindahl
2-digit SIC codes	0.700 [a]	0.348 [a]	-0.260 [a]	-0.389 [a]
(N)	(12571)	(10597)	(9385)	(4599)
4-digit SIC codes		0.424 [a]	-0.350 [a]	-0.441 [a]
(N)		(10597)	(9385)	(4599)
Product segments			-0.816 [a]	-0.803 [a]
(N)			(8986)	(4456)
Sales-based Herfindahl				0.881 [a]
(N)				(4154)

a Significant at the 0.001 level

[10] If P_i is the proportion of a firm's sales (assets) in industry segment i, the sales-based (asset-based) Herfindahl index of diversification is $H = \sum(P_i^2)$. Hence, the closer the Herfindahl index is to one, the less diversified is the firm.

At the country-level, my diversification measures are based on the firm-level measures above:

1. The average number of different two-digit SIC codes.

2. The average number of different four-digit SIC codes.

3. The average (mean) sales-based Herfindahl index.

4. The fraction of diversified firms, i.e. firms with multiple two-digit SIC codes.

5. The fraction of highly diversified firms, i.e. firms with more than four different two-digit SIC codes.

Table 4

Country-level correlations between alternative diversification measures

This table presents country-level Spearman's rank correlation coefficients between five alternative diversification measures: the mean number of two-digit SIC codes, the mean number of four-digit SIC codes, mean sales-based Herfindahl index, the fraction of diversified firms, and the fraction of highly diversified firms. A diversified firm is defined as one reporting more than one two-digit SIC code, and a highly diversified firm is defined as one reporting more than four two-digit SIC codes. All diversification measures were available for all 45 sample countries.

Diversification measure	4-digit SIC codes	Sales-based Herfindahl index	Fraction of diversified firms	Fraction of highly diversified firms
2-digit SIC codes	0.855 [a]	-0.275	0.936 [a]	0.734 [a]
4-digit SIC codes		-0.397 [b]	0.860 [a]	0.586 [a]
Sales-based Herfindahl index			-0.356 [c]	-0.203
Fraction of diversified firms				0.578 [a]

a Significant at the 0.001 level
b Significant at the 0.01 level
c Significant at the 0.05 level

Corporate diversification literature usually classifies a firm operating in several four-digit SIC code industries within the same 2-digit SIC code as a firm that has entered into related diversification. Unrelated diversification is commonly defined as operating in several two-digit SIC code industries. Even though the focus of this paper is not specifically on unrelated

diversification, I generally emphasize the results obtained with the measures based on two-digit SIC codes because, as briefly discussed in section 2.2.3., unrelated diversification is most likely to destroy value and hence variables measuring unrelated diversification may also be more likely to yield results that are clear and simple to interpret. One should note that not all of the measures are used in each of the analyses because of an unsatisfactory amount of available data or for simplicity reasons. Table 4 reports the correlations between the alternative country-level diversification measures, confirming that these measures are again highly correlated. However, the significance levels are generally lower than at the firm-level due to much lower sample size.

4.2.2. Logit model

In addition to the common ordinary least squares regression model, I employ firm-level logit regressions. The logit model is a binary choice model that is fitted using maximum likelihood estimation. A binary choice model is a model in which the dependent variable (outcome of an event) is being assigned a value of one if a certain event occurs, and zero otherwise. In this study, the dependent variable is assigned a value of one when a firm operates in at least two business lines and is hence diversified, and zero when a firm is a single-segment company, i.e. not diversified. For more detailed explanations on different binary models and their proofs, see e.g. Greene (2003).

Defining a variable Z that is a linear function of the independent (explanatory) variables in the model, we can write

$$Z_j = \beta_0 + \sum \beta_i X_{ij}, \tag{4.1}$$

where coefficient β_0 is the intercept and coefficient β_i is the sensitivity of Z_j to independent variable X_{ij}. Assuming that probability p is a logistic form sigmoid (S-shaped) function of Z, the logit model hypothesizes that the probability of the occurrence of an event is determined by the function

$$p_j = F(Z_j) = \frac{1}{(1+e^{-Z_j})}. \tag{4.2}$$

As Z tends to infinity, e^{-Z} tends to zero and p has a limiting upper bound of one. Hence, there is no possibility of the probability being greater than one or less than zero.

The marginal effect of Z on the probability, which is denoted $f(Z)$, is given by the derivative of this function with respect to Z:

$$f(Z) = \frac{dp}{dZ} = \frac{e^{-Z}}{(1+e^{-Z})^2}. \qquad (4.3)$$

The derivative is needed for predicting the effects of changes in one of the independent variables on the probability of belonging to a group, such as diversified firms. The usual method is to calculate the marginal effect at the mean value of the independent variables.

Although the significance of an individual coefficient can be evaluated via its asymptotic t-statistic, there is no measure of model goodness of fit equivalent to R squared in maximum likelihood estimation. Numerous measures have been proposed for comparing alternative model specifications. Denoting the actual outcome in observation j Y_j, with $Y_j = 1$ if the event occurs and 0 if it does not, and denoting the predicted probability of the event occurring P_j, the measures include the following (of which I employ the first one):

1. The number of outcomes correctly predicted, taking the prediction in observation j as 1 if P_j is greater than 0.5 and 0 if it is less.

2. The sum of the squared residuals: $\sum (Y_j - P_j)^2$.

3. The correlation between the outcomes and predicted probabilities.

4. Pseudo-R^2 that compares the actual log-likelihood of the model, $log\ L$, with the log-likelihood that would have been obtained with only the intercept β_0 in the regression, $log\ L_0$. The pseudo-R^2 is the proportion by which $log\ L$ is smaller, in absolute size, than $log\ L_0$:

$$Pseudo - R^2 = 1 - \frac{\log L}{\log L_0}.$$

4.2.3. Trend analysis

The trend analysis section is descriptive in nature and the methodology follows largely Comment and Jarrell (1995) who document corporate focus trends in 1978-1989 with U.S. data.

The first step of the analysis includes all eligible Worldscope firms, i.e. firms selected with the procedure described above, for each year 1997-2001. At this stage, I calculate the average diversification level of all the firms each year, using two- and four-digit SIC codes as well as the fraction of diversified and highly diversified firms (see definitions in section 4.2.1.) as diversification measures.

Databases such as Worldscope typically start from the largest firms and gradually add smaller ones later. Hence, the trend identified at the first stage may merely be an artifact of a shift in sample composition (firms arriving and leaving). Especially, it is likely that arriving (smaller) firms have higher focus levels and hence their inclusion may bias the annual statistics downwards. To control for this potential selection bias, my second step involves excluding firms that do not have annual data available for the entire sample period, i.e. firms that have either entered or exited the database during 1998-2001.

Finally, to examine changes in average diversification at the country-level, I repeat the same two-step analysis for all sample countries separately (with only the two-digit SIC code measure). The possible trend identified in the firm-level part may largely result from a strong trend in one or two countries with a large number of observations (particularly United States and Japan). Hence, documenting country-level changes provides evidence on whether the trend is caused merely by the domination of few countries, as opposed to a truly global trend pattern.

5. EMPIRICAL FINDINGS

This chapter presents the empirical results of the study and discusses the evidence with regard to my hypotheses and the existing literature.

5.1. Firm-level diversification

5.1.1. Summary statistics

What becomes evident by looking at the summary statistics in Table 5 below is the great variation in sample firm characteristics such as firm size, firm growth, profitability, leverage, and ownership.

The level of diversification varies from one to eight unrelated industrial sectors[11] (as measured by the number of different two-digit SIC codes), the mean number of unrelated sectors being 1.995 and median 2. The variation in other diversification measures is similarly large. Panel B of Table 5 shows that the majority of the sample firms are diversified. The fraction of companies with multiple industrial segments is at least 60 percent for every diversification measure. Highly diversified firms, however, are less common: only 3.3 percent of the sample firms operate in more than four unrelated sectors. Figure 1 depicts the sample firm distributions according to their diversification level. The distributions based on the number of SIC codes and product segments are heavily skewed to the right, whereas the distributions based on the Herfindahl indexes are much more uniform.

The variation in firm size is similarly clear. The median net sales are $174.5 million, however the largest firms exhibit figures over $200 *billion*. The market capitalization of exchange listed firms varies from just ten thousand dollars to over 350 billion dollars, and the number of employees and shareholders varies from just one or two to hundreds of thousands. Total real sales and asset growth rates for the past four and five years (respectively) have a median value around 30 percent. The financial ratios included in the statistics provide some idea

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[11] One should note the fact that Worldscope assigns only a maximum of eight SIC codes and ten product segments for any single firm. However, only four firms report eight two-digit SIC codes and only 63 firms report ten product segments (see Figure 1), and hence this is unlikely to create a major bias in the analysis.

Table 5
Summary statistics of the basic sample

This table presents summary statistics for the full basic sample. Panel A presents statistics related to diversification, firm size, firm growth, and common financial ratios. Panel B presents the fraction of the sample firms that meet a given condition for diversification and ownership. N is the number of firms for which each variable is available.

Panel A: Diversification, firm size, firm growth, and common financial ratios

Firm characteristic	Median	Mean	Standard Deviation	Minimum	Maximum	N
Diversification						
Number of 2-digit SIC codes	2	1.995	1.090	1	8	12571
Number of 4-digit SIC codes	3	3.038	1.675	1	8	12571
Number of product segments	3	3.019	1.750	1	10	10597
Sales-based Herfindahl index	0.594	0.635	0.279	0.000	1.000	9385
Asset-based Herfindahl index	0.611	0.629	0.343	0.000	1.000	4599
Size						
Net sales ($ million)	174.48	1057.39	4583.17	20.00	206083.00	12571
Total assets ($ million)	191.15	1210.82	5436.91	1.39	164735.00	12547
Market capitalization ($ million)	99.20	1347.52	8996.01	0.01	356623.75	11925
Number of employees	958	5671.71	24246.15	2	1244000	11157
Number of shareholders	1709	4542.97	20575.56	1	567293	1435
Growth rate						
Real net sales, four-year total	29.6 %	434.1 %	6471.8 %	-98.8 %	365785.2 %	8334
Real total assets, five-year total	32.5 %	269.4 %	4372.7 %	-93.4 %	192486.7 %	7112
Number of employees, five-year average	3.6 %	7.8 %	21.0 %	-70.8 %	329.6 %	6019
Financial Ratios						
Return on equity	6.3 %	-2.6 %	67.5 %	-967.6 %	744.6 %	11443
Return on assets	4.0 %	-0.2 %	36.3 %	-987.0 %	690.3 %	11977
Operating margin	4.6 %	0.1 %	37.6 %	-853.1 %	239.2 %	12540
Net margin	2.0 %	-5.5 %	50.8 %	-986.8 %	697.8 %	12544
Capital expenditure / total sales	4.1 %	10.0 %	28.0 %	0%	931.0 %	11585
Debt / assets	0.23	0.25	0.21	0	0.998	12383
Dividend payout ratio	0	0.15	0.22	0	1.00	10767
Price / earnings	37.68	41.23	29.98	0.03	894.49	9944
Price / book	1.69	2.92	10.18	0.002	551.86	6733

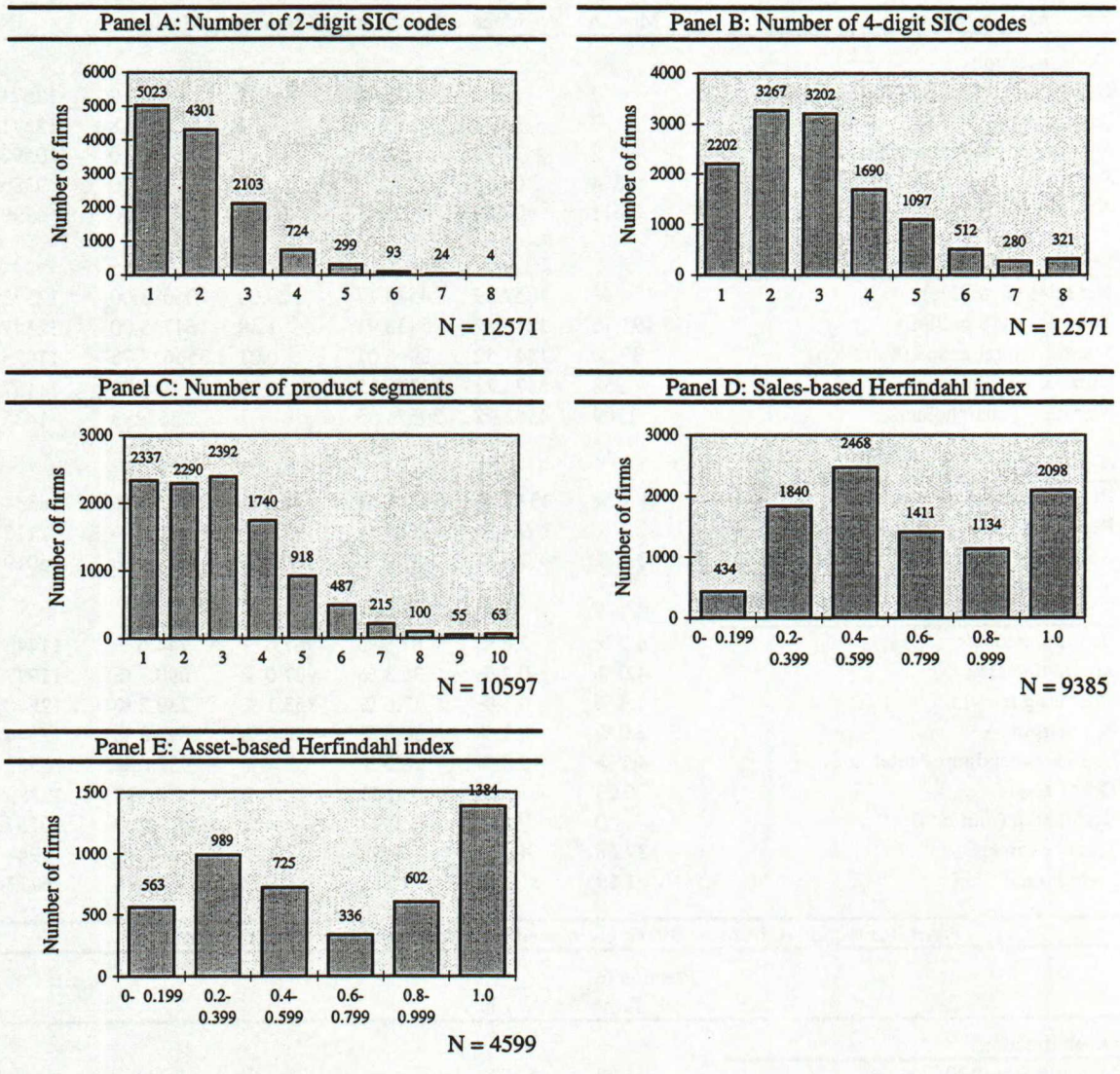
Panel B: Fraction of firms meeting a given condition for diversification and ownership

	Fraction of firms	N
Diversification		
Multiple 2-digit SIC codes	0.600	12571
Multiple 4-digit SIC codes	0.825	12571
Multiple product segments	0.779	10597
More than four 2-digit SIC codes	0.033	12571
More than four 4-digit SIC codes	0.176	12571
More than four product segments	0.173	10597
Ownership		
Publicly listed	0.890	12571
Block owner (>10% of votes)	0.760	7785
Block owner (>20% of votes)	0.457	7785
Block owner (>30% of votes)	0.321	7785
Block owner (>50% of votes)	0.175	7785

Figure 1

Sample firm distributions according to diversification level

This figure depicts sample firm distributions according to diversification level as measured by five alternative variables: the number of two-digit SIC codes, the number of four-digit SIC codes, the number of reported product segments, sales-based Herfindahl index, and asset-based Herfindahl index. N is the number of firms for which each variable is available.



about the profitability and leverage of the sample firms: the median net margin is 2.0 percent, the median debt to assets ratio is 0.23, and the median dividend payout ratio is, surprisingly, zero. Finally, the ownership statistics of Panel B indicate that close to 90 percent of the sample firms are listed in at least one exchange and that many of the firms have large shareholders controlling a significant portion of voting rights.

In short, the median firm operates in two unrelated industries, is publicly listed, has at least one block owner with more than 10 percent of votes, net sales of $174 million with a total real growth of 29.6 percent over the past four years, a $99-million market capitalization, 958 employees, a 4.0 percent return on assets, a net margin of 2.0 percent, a debt to assets ratio of 0.23, and zero dividend.

5.1.2. Univariate analysis

I begin examining the firm-level determinants of corporate diversification with a simple univariate analysis. Table 6 provides some preliminary evidence that the chosen explanatory variables are associated with corporate diversification.

Table 6
Univariate summary of firm-level independent variables

This table classifies the sample firms according to their ranking in the independent regression variables. Each panel shows the mean value of alternative diversification measures for different firm groups as per each independent variable. The last row of each panel shows the t-statistic for a test of means between the bottom and top firm quartiles or, for dummy variables, the t-statistic for a test of means between the two firm groups. The variables are defined in Table A1.

Independent variable	Number of 2-digit SIC codes	Number of 4-digit SIC codes	Fraction of diversified firms	Fraction of highly diversified firms	Sales-based Herfindahl index
Ln (Net sales)					
Bottom 25%	1.744	2.511	0.510	0.012	0.701
Middle 50%	1.975	2.973	0.604	0.027	0.626
Top 25%	2.289	3.694	0.683	0.068	0.586
Tests of means (t-statistic)					
Bottom 25% vs. Top 25%	-19.65 [a]	-28.47 [a]	-14.26 [a]	-11.43 [a]	14.37 [a]
Debt to assets					
Bottom 25%	1.779	2.795	0.534	0.019	0.665
Middle 50%	2.056	3.191	0.637	0.039	0.610
Top 25%	2.093	2.975	0.593	0.037	0.649
Tests of means (t-statistic)					
Bottom 25% vs. Top 25%	-11.78 [a]	-4.45 [a]	-4.67 [a]	-4.22 [a]	2.03 [b]
Sales growth					
Bottom 25%	2.236	3.491	0.698	0.045	0.624
Middle 50%	2.190	3.449	0.667	0.049	0.606
Top 25%	1.866	2.826	0.545	0.032	0.657
Tests of means (t-statistic)					
Bottom 25% vs. Top 25%	10.83 [a]	12.65 [a]	10.37 [a]	2.18 [b]	-3.31 [a]

Operating margin					
Bottom 25%	1.842	2.659	0.494	0.014	0.691
Middle 50%	2.107	3.265	0.660	0.043	0.612
Top 25%	1.924	3.178	0.627	0.037	0.590
Tests of means (t-statistic)					
Bottom 25% vs. Top 25%	-3.13 [a]	-10.42 [a]	-8.74 [a]	-4.61 [a]	10.37 [a]
Stock options dummy					
No	2.080	3.187	0.619	0.047	0.667
Yes	1.654	2.491	0.447	0.014	0.718
Tests of means (t-statistic)					
No vs. Yes	15.94 [a]	16.91 [a]	14.47 [a]	7.19 [a]	-7.01 [a]
Block dummy 20%					
No	1.931	2.952	0.571	0.026	0.664
Yes	2.000	3.061	0.593	0.038	0.663
Tests of means (t-statistic)					
No vs. Yes	-2.80 [a]	-2.88 [a]	-1.97 [b]	-3.05 [a]	0.05
Privatized firm dummy					
No	1.994	3.033	0.600	0.033	0.635
Yes	2.288	4.000	0.652	0.091	0.527
Tests of means (t-statistic)					
No vs. Yes	-2.19 [b]	-4.68 [a]	-0.85	-2.61 [a]	2.58 [a]
U.S. exchange dummy					
No	2.141	3.292	0.666	0.041	0.577
Yes	1.696	2.504	0.474	0.014	0.722
Tests of means (t-statistic)					
No vs. Yes	19.90 [a]	23.05 [a]	19.16 [a]	7.36 [a]	-23.24 [a]
U.S. Gaap dummy					
No	2.263	3.576	0.702	0.054	0.572
Yes	1.656	2.437	0.454	0.013	0.733
Tests of means (t-statistic)					
No vs. Yes	29.18 [a]	35.90 [a]	26.86 [a]	11.48 [a]	-27.31 [a]
Analysts					
One to two	1.970	2.959	0.596	0.029	0.645
Three to nine	1.993	3.109	0.601	0.032	0.623
Ten or more	2.200	3.599	0.643	0.067	0.609
Tests of means (t-statistic)					
One to two vs. Ten or more	-5.62 [a]	-10.16 [a]	-2.71 [a]	-5.27 [a]	3.26 [a]

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

As expected, large firms are much more diversified than small firms, with the average difference between the smallest and largest quartile almost 0.55 two-digit SIC codes. Firms with high debt ratios and low sales growth are more diversified than their less leveraged and faster growing competitors. The results are less clear for profitability as diversification seems to follow a reverse U-shaped pattern. The most profitable firms (as measured by operating margins) are on average somewhat more diversified than the least profitable firms. Stock options show a clear association with diversification as firms that utilize employee stock options exhibit much lower diversification than firms that do not. Firms with a block owner controlling over 20 percent of votes seem to be diversified, as are firms that have been entirely or partially privatized, and firms that have high analyst following. Finally, firms that are listed in a U.S. exchange and firms that follow U.S. Gaap accounting standards exhibit strikingly low average diversification levels. Summing up the univariate analysis, high diversification seems to be associated with high net sales, high leverage, low sales growth, high profitability, no stock options, block ownership, privatization (state ownership), no listing in the U.S., not complying with U.S. Gaap accounting standards, and high analyst following.

Even though the significance levels in the univariate analysis are generally very high, one should not draw too many conclusions from the results. A major problem in the analysis is that both United States and Japan have a clear dominating impact on the results due to the large number of firms included in the sample from these two countries. An additional problem is imposed by the interrelation between certain variables. For instance, large firms are both more likely to be followed by analysts (see, e.g. Moyer, Chatfiled, and Sisneros (1989) and Brennan and Hughes (1991)) *and* more likely to be diversified. Hence, the positive relation between analyst following and diversification suggested in Table 6 may merely reflect the association between analyst following and firm size instead of providing a true picture of an association between analyst following and diversification. To control for these problems, I continue the analysis in the following section by employing OLS and logit regressions.

5.1.3. Regression analysis

This section begins with the ordinary least squares (OLS) regressions of Table 7 in which I use the number of different two-digit SIC codes as the dependent variable and run six alternative specifications. I control for fixed country effects by including country dummies

and for fixed industry effects by including industry dummies in each specification. Industries are defined broadly according to the SIC division structure.

To control for variable-specific country effects I include cross dummies for sales growth, operating margin, block ownership, and analyst following for ten countries in specifications (4) to (6). The countries chosen are the ones with the highest average diversification levels (see Table 11 in section 5.2.1.). If diversification has any favorable effects in some parts of the world, these countries are the most likely candidates and diversification may lead to higher sales growth, a higher operating margin, a different association between block ownership and diversification, and higher analyst following, in contrast with the basic hypotheses. However, the cross dummy coefficients (not reported) provide little support for the idea that the determinants of firm-level diversification in countries where average diversification level is high would somehow systematically differ from the determinants in the remaining sample countries. No systematic pattern emerges in any of the independent variables, nor does any single country exhibit coefficients that would consistently differ from the basic hypotheses. However, the coefficients do suggest that in few individual countries, the association between corporate diversification and some individual variables may differ from the norm. Most notably, analyst following in France seems to increase with diversification, and block ownership in Singapore seems to have a clear diversification-increasing impact.

Finally, to examine the robustness of the results to the diversification measure used, I repeat the OLS analysis with two alternative measures: the number of four-digit SIC industries, and the sales-based Herfindahl index. The results turn out to be very similar to those reported in Table 7 (see Tables A2 and A3 in the Appendix). Spearman's rank correlations between the independent variables are presented in Table 9.

Table 8 presents the results of the logit regressions. The dependent variable is a diversification dummy, i.e. it is given the value one when a firm is diversified to more than one two-digit SIC segments, and zero otherwise. The independent variables and regression specifications are identical to those of the OLS regressions in Table 7. Both models yield relatively good explanatory power as the adjusted R squared value in the OLS analysis lies around 0.16 (and even higher for the alternative diversification measures used in Tables A2 and A3), and the fraction of correct predictions in the logit model reaches about two thirds.

Table 7
Firm-level OLS regressions

This table presents the results of OLS regressions examining the relationship between firm characteristics and corporate diversification. The dependent variable is the number of two-digit SIC codes. The independent variables are defined in Table A1. Industries are defined broadly according to the SIC division structure. Number of observations is the number of firms included in each regression specification. T-statistics are in parentheses.

	Dependent variable: Number of 2-digit SIC codes						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	Expected sign
Constant	0.428	0.509	1.077	1.785	2.405 [c]	2.339 [c]	
	(0.71)	(0.82)	(1.61)	(1.45)	(1.65)	(1.80)	
Ln (Net sales)	0.122 [a]	0.120 [a]	0.121 [a]	0.122 [a]	0.124 [a]	0.118 [a]	+
	(7.73)	(7.12)	(7.65)	(5.60)	(5.68)	(5.42)	
Debt / assets	0.016	0.015	0.001	0.121	0.097	0.110	- / +
	(0.17)	(0.14)	(0.01)	(0.78)	(0.62)	(0.70)	
Sales growth	-0.0003	-0.0004	-0.0003	-0.0004	-0.0004	-0.0004	-
	(-1.20)	(-1.43)	(-1.21)	(-1.44)	(-1.63)	(-1.45)	
Operating margin	-0.149	-0.129	-0.143	-0.009	-0.008	-0.008	-
	(-1.55)	(-1.27)	(-1.49)	(-0.80)	(-0.67)	(-0.69)	
Stock options dummy	0.019	0.004	0.022	0.041	0.040	0.041	-
	(0.32)	(0.07)	(0.38)	(0.49)	(0.48)	(0.49)	
Block dummy 20%	-0.167 [a]	-0.152 [a]	-0.156 [a]	-0.127 [c]	-0.126 [c]	-0.135 [c]	- / +
	(-3.29)	(-2.79)	(-3.06)	(-1.69)	(-1.68)	(-1.80)	
Privatized firm dummy	-0.214	-0.557 [c]	-0.231	-0.706 [b]	-0.714 [b]	-0.678 [b]	- / +
	(-0.85)	(-1.95)	(-0.92)	(-2.19)	(-2.22)	(-2.10)	
U.S. exchange dummy		-0.008			-0.323		-
		(-0.08)			(-1.50)		
U.S. Gaap dummy			-0.639 [b]			-0.468	-
			(-2.13)			(-1.13)	
Analysts	-0.006	-0.007 [c]	-0.005	-0.005	-0.004	-0.005	-
	(-1.63)	(-1.69)	(-1.34)	(-0.88)	(-0.80)	(-0.88)	
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Cross dummies	No	No	No	Yes	Yes	Yes	
Adjusted R squared	0.162	0.152	0.157	0.164	0.166	0.163	
No. of observations	2187	1946	2148	1338	1336	1317	

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table 8
Firm-level logit regressions

This table presents the results of logit regressions examining the relationship between firm characteristics and the diversification decision. The dependent variable is a diversification dummy, where diversification is defined as reporting more than one two-digit SIC code. The independent variables are defined in Table A1. Industries are defined broadly according to the SIC division structure. Number of observations is the number of firms included in each regression specification. T-statistics are in parentheses.

	Dependent variable: Diversification dummy						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	Expected sign
Constant	-2.734 [b]	-2.618 [c]	-1.910	16.071	16.139	17.024	
	(-2.02)	(-1.91)	(-1.25)	(0.00)	(0.00)	(0.00)	
Ln (Net sales)	0.194 [a]	0.185 [a]	0.193 [a]	0.205 [a]	0.203 [a]	0.204 [a]	+
	(5.71)	(5.14)	(5.68)	(4.46)	(4.41)	(4.43)	
Debt / assets	-0.173	-0.129	-0.197	0.059	0.057	0.008	- / +
	(-0.86)	(-0.59)	(-0.98)	(0.19)	(0.18)	(0.03)	
Sales growth	-0.003	-0.003	-0.003	-0.004	-0.004	-0.003	-
	(-1.45)	(-1.51)	(-1.45)	(-1.44)	(-1.45)	(-1.43)	
Operating margin	-0.530 [b]	-0.444 [b]	-0.515 [b]	-0.403	-0.406	-0.381	-
	(-2.49)	(-2.01)	(-2.43)	(-1.63)	(-1.63)	(-1.54)	
Stock options dummy	-0.127	-0.158	-0.123	-0.090	-0.095	-0.096	-
	(-1.07)	(-1.24)	(-1.04)	(-0.55)	(-0.58)	(-0.59)	
Block dummy 20%	-0.251 [b]	-0.189 [c]	-0.257 [b]	-0.181	-0.168	-0.206	- / +
	(-2.37)	(-1.67)	(-2.41)	(-1.18)	(-1.1)	(-1.34)	
Privatized firm dummy	0.003	-0.599	-0.057	-0.932	-0.950	-0.888	- / +
	(0.01)	(-0.88)	(-0.09)	(-1.28)	(-1.31)	(-1.22)	
U.S. exchange dummy		0.108			-0.031		-
		(0.53)			(-0.07)		
U.S. Gaap dummy			-0.808			-0.880	-
			(-1.12)			(-0.98)	
Analysts	-0.002	-0.005	-0.002	0.000	0.001	-0.001	-
	(-0.29)	(-0.6)	(-0.23)	(0.03)	(0.07)	(-0.1)	
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Cross dummies	No	No	No	Yes	Yes	Yes	
Percentage of correct predictions	66.5	66.2	66.3	68.4	68.4	68.7	
No. of observations	2188	1947	2149	1339	1337	1318	

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table 9

Firm-level correlations between independent regression variables

This table presents firm-level Spearman's rank correlation coefficients between the independent variables used in tables 6 to 8. N is the number of firms for which each variable pair was available. The variables are defined in Table A1.

Independent variable	Debt / assets	Sales growth	Operating margin	Stock options dummy	Block dummy 20%	Privatized firm dummy	U.S. exchange dummy	U.S. Gaap dummy	Analysts
Ln (Net sales)	0.165 [a]	0.050 [a]	0.165 [a]	-0.027 [c]	-0.055 [a]	0.084 [a]	0.102 [a]	-0.017	0.458 [a]
(N)	(12571)	(12537)	(8334)	(8451)	(12540)	(12571)	(11186)	(10793)	(6246)
Debt / assets		-0.045 [a]	-0.043 [a]	-0.145 [a]	0.053 [a]	0.023 [b]	-0.091 [a]	-0.009	-0.035 [b]
(N)		(8322)	(12510)	(8440)	(7773)	(12537)	(11159)	(10767)	(6239)
Sales growth			0.211 [a]	0.181 [a]	-0.077 [a]	0.006	0.163 [a]	0.159 [a]	0.179 [a]
(N)			(8322)	(6024)	(5749)	(8334)	(7566)	(7867)	(4503)
Operating margin				-0.060 [a]	-0.001	0.030 [a]	0.010	-0.099 [a]	0.234 [a]
(N)				(8447)	(7776)	(12540)	(11164)	(10782)	(6241)
Stock options dummy					-0.206 [a]	-0.050 [a]	0.553 [a]	0.539 [a]	0.009
(N)					(5903)	(8451)	(7419)	(8221)	(4744)
Block dummy 20%						0.048 [a]	-0.239 [a]	-0.176 [a]	-0.028
(N)						(7785)	(6783)	(7462)	(3973)
Privatized firm dummy							-0.040 [a]	-0.066 [a]	0.088 [a]
(N)							(11186)	(10793)	(6246)
U.S. exchange dummy								0.835 [a]	0.091 [a]
(N)								(9569)	(6226)
U.S. Gaap dummy									0.049 [a]
(N)									(5792)

a Significant at the 0.001 level
b Significant at the 0.01 level
c Significant at the 0.05 level

The results in Tables 7 and 8 provide at least partial support to several central hypotheses. As expected, diversification clearly increases with firm size as measured by the natural logarithm of net sales. The results for leverage are weak as none of the coefficients are statistically significant, suggesting that the potential ability of diversified firms to bear more debt may be canceled out by the potential of debt in reducing agency problems (that in turn might lead to high corporate diversification). In any case, the results indicate that diversified firms fail to exploit their theoretically higher debt capacity and hence one of the main potential economic benefits of diversification.

As hypothesized, investment opportunities and accounting performance (as measured by sales growth and operating margins) seem to decrease with diversification. Although introducing cross dummies in specifications (4) to (6) reduces the significance of the profitability coefficients, the relation remains consistently negative. The coefficients in the logit regressions translate to an average marginal decrease of 0.9 percent in the probability of being diversified per each ten percent increase in operating profitability, calculated at the variable means. An interesting observation is that the profitability coefficients are more significant in the logit model than in the OLS model. This suggests that the major decrease in profitability occurs with the shift from one to two industrial segments, in line with the results of Lang and Stulz (1994). While my results certainly are not conclusive, they provide support to the broad line of research arguing that investment opportunities and accounting performance in diversified firms are generally inferior to those in focused firms (see section 3.1.3.).

Tying managerial wealth to firm performance does not have an effect on firm-level diversification in my results. The coefficients of the stock option dummy are not only weak but also positive or negative depending on the specification. In contrast, ownership concentration seems to play a major role in explaining firm-level diversification. In line with the hypothesis that blockholders provide companies with significant monitoring benefits and are thus able to reduce managerial agency problems, diversification and block ownership exhibit a robust negative relation. Table 7 indicates that introducing a shareholder that possesses more than 20 percent of the votes reduces the number of unrelated segments by as much as 0.167. Introducing cross dummies makes the relation somewhat weaker, however the coefficients remain consistently negative. The logit model suggests that introducing a 20 percent blockholder leads to an average reduction of 4.2 percent in the probability of unrelated diversification (again calculated at the variable means). This result is consistent with Denis,

Denis, and Sarin (1997) who similarly find that diversification is negatively related to outside blockholders' equity ownership. Firm-level agency costs stemming from blockholders' excessive firm-specific risk or the private benefits they derive from diversification do not seem to play a role, or at least these costs are dominated by the monitoring effect. However, since the analysis does not separate between owner-managers and owners that are not involved in management, it is impossible to say anything more about the detailed nature of the results. Neither does the analysis allow conclusions about firms in which the largest shareholders' voting rights exceed their cash flow rights, nor firms with pyramidal ownership structures.

Similar to ownership concentration, current or previous state ownership proxied by privatization dummy has a clear diversification-reducing effect. Table 7 indicates that privatized firms have on average as many as 0.7 fewer two-digit SIC segments than comparable non-privatized firms. Similarly, state firms in the logit specifications exhibit a lower marginal probability of being diversified: the privatization dummy reduces the probability of being diversified by an average of 4.5 percent. This result provides strong support for the hypothesis that state firms are typically created for a specific (and focused) purpose. Despite the fact that my data does not identify pure state firms (i.e. firms with a state ownership of 100 percent), the results appear quite robust.

The firm-level disclosure quality and analyst following variables provide weak support for the hypotheses that diversified firms suffer from transparency problems and that diversification can be reduced by introducing higher disclosure standards. U.S. Gaap accounting standards seem to have a stronger impact on diversification than a U.S. listing, however the coefficients are generally insignificant. Still, it is worth pointing out that introducing U.S. Gaap standards consistently reduces the number of unrelated segments, by up to 0.64. Similarly, diversification is decreasing with the number of analysts following a firm, consistent with the agency view as well as previous empirical evidence by e.g. Ferris and Sarin (2000). However, the results are weak and one should note that even though lower analyst following logically translates to lower transparency, the causal relationship between diversification and analyst following is not clear. While it may well be that firms remain diversified because of less analyst following, it may also be that analysts themselves are simply not interested in diversified firms (see section 3.1.6. for a discussion). Hence all that can be said is that the

evidence as a whole weakly supports the notion that firm-level diversification generally reduces transparency.

5.2. Country-level diversification

5.2.1. Average diversification levels

Figure 2 depicts the sample country distributions according to their diversification level. The distributions based on SIC codes and the Herfindahl index are less skewed than the distributions based on the fraction of diversified or highly diversified firms.

Table 10 presents average diversification levels in the 45 sample countries. The table also shows the average firm size for each country as well as the number of firms included from each sample country. Similar to the firm-level statistics, average diversification levels clearly vary across countries and more broadly across geographic regions. For individual countries, the mean number of two-digit SIC segments varies from 1.467 in Pakistan to 3.121 in Czech Republic. Similarly, the fraction of diversified firms varies from 0.433 in Pakistan to 0.955 in Hungary.

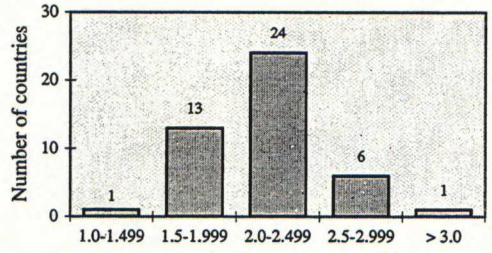
To make identifying low- and high-diversification countries easier, Table 11 ranks the sample countries according to each alternative country-level diversification measure. At the country-level, Hungary, Switzerland, Czech Republic, and Poland respectively exhibit most consistent high average diversification across the alternative diversification measures. At the other end of the spectrum, Pakistan, United States, Canada, and Ireland respectively exhibit most consistent low diversification levels. Also, countries within certain geographical and cultural regions seem to exhibit similar diversification characteristics. Specifically, Eastern Europe, Southeast Asia, and German-speaking countries are more prone to high diversification than English-speaking countries. Scandinavian countries seem to stand somewhere in the middle. For instance, Finland ranks very close to the median in almost all the alternative measures. However, differences do exist within the country groups. For instance, diversification seems much more prevalent in Finland and Denmark compared to Sweden and Norway.

Summing up, the country-level differences in corporate diversification are evident. The next two sections analyze the determinants of country-level diversification to understand the main reasons behind the differences.

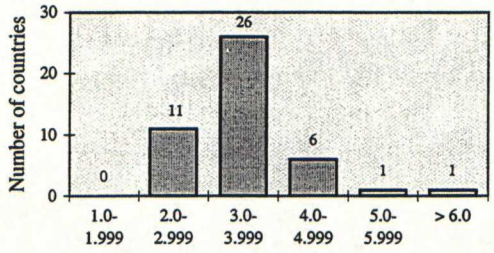
Figure 2
Sample country distributions according to average diversification level

This figure depicts sample country distributions according to average diversification level as measured by five alternative variables: the mean number of two-digit SIC codes, the mean number of four-digit SIC codes, mean sales-based Herfindahl index, the fraction of diversified firms, and the fraction of highly diversified firms. A diversified firm is defined as one reporting more than one two-digit SIC code and a highly diversified firm is defined as one reporting more than four two-digit SIC codes. All the diversification variables were available for all 45 sample countries.

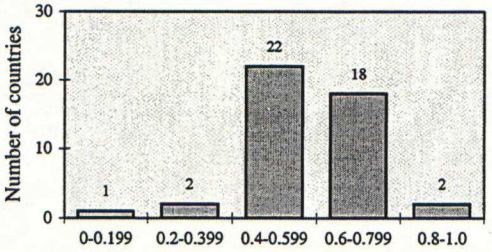
Panel A: Number of 2-digit SIC codes



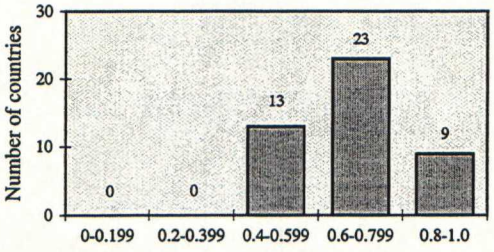
Panel B: Number of 4-digit SIC codes



Panel C: Sales-based Herfindahl index



Panel D: Fraction of diversified firms



Panel E: Fraction of highly diversified firms

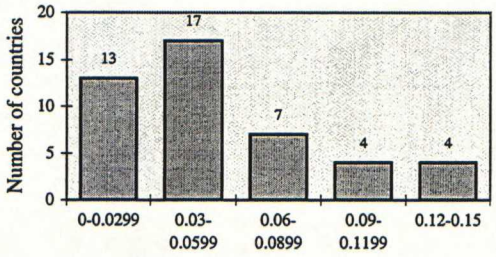


Table 10
Average diversification across the sample countries

This table presents country-level means for five alternative diversification variables: the number of two-digit SIC codes, the number of four-digit SIC codes, sales-based Herfindahl index, the fraction of diversified firms, and the fraction of highly diversified firms. A diversified firm is defined as one reporting more than one two-digit SIC code, and a highly diversified firm is defined as one reporting more than four two-digit SIC codes. Average firm size is defined as the mean annual net sales of all sample firms in a country. N is the number of firms included in the basic sample from each country.

Country	Number of 2-digit SIC codes	Number of 4-digit SIC codes	Sales-based Herfindahl index	Fraction of diversified firms	Fraction of highly diversified firms	Average firm size ($ million)	N
Argentina	2.182	3.250	0.653	0.727	0.045	610.29	44
Australia	2.206	3.246	0.743	0.616	0.071	508.91	281
Austria	2.500	4.273	0.526	0.818	0.106	419.67	66
Belgium	2.289	3.211	0.436	0.744	0.089	1087.99	90
Brazil	1.903	3.479	0.203	0.604	0.009	553.69	217
Canada	1.794	2.767	0.670	0.477	0.019	923.40	373
Chile	2.266	3.266	0.562	0.747	0.038	262.19	79
China	2.050	3.110	0.776	0.600	0.040	719.63	100
Colombia	2.059	3.647	0.250	0.647	0.059	253.48	17
Czech Republic	3.121	6.182	0.518	0.909	0.121	283.90	33
Denmark	2.248	3.154	0.500	0.769	0.034	529.05	117
Finland	2.188	3.482	0.497	0.670	0.045	984.64	112
France	2.493	3.699	0.487	0.771	0.093	1606.70	558
Germany	2.429	4.066	0.522	0.761	0.080	1463.19	560
Greece	2.366	4.006	0.576	0.800	0.023	197.20	175
Hong Kong	2.367	3.500	0.668	0.791	0.051	426.78	158
Hungary	2.636	5.318	0.169	0.955	0.091	219.29	22
India	2.339	3.605	0.560	0.738	0.060	328.21	248
Indonesia	2.135	3.539	0.774	0.663	0.067	185.36	89
Ireland	1.761	2.674	0.641	0.500	0.022	546.15	46
Israel	1.750	2.577	0.620	0.442	0.038	390.76	52
Italy	2.644	3.980	0.503	0.826	0.094	1237.99	149
Japan	2.181	3.353	0.466	0.711	0.027	1053.96	2160
Malaysia	2.493	3.507	0.851	0.718	0.127	180.97	71
Mexico	2.356	3.511	0.591	0.822	0.067	1079.39	90

Netherlands	2.157	3.438	0.563	0.686	0.033	1208.34	121
New Zealand	2.222	3.185	0.757	0.667	0.037	580.68	27
Norway	1.880	2.587	0.614	0.573	0.053	334.81	75
Pakistan	1.467	2.133	0.853	0.433	0.000	105.51	30
Peru	1.931	3.310	0.554	0.483	0.034	78.02	29
Philippines	1.920	2.840	0.650	0.520	0.040	108.45	25
Poland	2.676	4.882	0.503	0.853	0.147	170.11	34
Portugal	2.129	3.548	0.643	0.677	0.032	200.03	31
Singapore	2.506	3.301	0.653	0.723	0.072	332.85	83
South Africa	2.115	3.313	0.577	0.648	0.055	401.36	182
South Korea	1.866	2.853	0.499	0.563	0.018	752.10	380
Spain	2.393	3.714	0.525	0.786	0.036	1085.61	56
Sweden	1.911	2.763	0.466	0.541	0.044	613.38	135
Switzerland	2.722	4.356	0.487	0.833	0.133	1743.60	90
Taiwan	1.903	3.023	0.745	0.557	0.023	523.84	176
Thailand	1.891	2.891	0.713	0.582	0.018	175.30	55
Turkey	1.762	2.794	0.403	0.556	0.000	181.82	63
United Kingdom	2.081	3.065	0.728	0.650	0.023	921.39	602
USA	1.641	2.402	0.740	0.447	0.011	1379.62	4460
Venezuela	2.400	4.000	0.602	0.900	0.000	164.48	10
Mean	2.185	3.440	0.579	0.678	0.052	602.54	279.36
Median	2.182	3.313	0.576	0.677	0.040	508.91	90
Standard deviation	0.328	0.742	0.149	0.133	0.037	446.64	719.84
Minimum	1.467	2.133	0.169	0.433	0.000	78.02	10
Maximum	3.121	6.182	0.853	0.955	0.147	1743.60	4460
Number of countries	45	45	45	45	45	45	45

Table 11
Country rankings according to average diversification level

This table presents country rankings for four alternative diversification measures: mean number of two-digit SIC codes, mean number of four-digit SIC codes, mean sales-based Herfindahl index, the fraction of diversified firms, and the fraction of highly diversified firms. A diversified firm is defined as one reporting more than one two-digit SIC code and a highly diversified firm is defined as one reporting more than four two-digit SIC codes.

Rank	Country	Number of 2-digit SIC codes	Country	Number of 4-digit SIC codes	Country	Sales-based Herfindahl index	Country	Fraction of diversified firms	Country	Fraction of highly diversified firms
1	Czech Republic	3.121	Czech Republic	6.182	Hungary	0.169	Hungary	0.955	Poland	0.147
2	Switzerland	2.722	Hungary	5.318	Brazil	0.203	Czech Republic	0.909	Switzerland	0.133
3	Poland	2.676	Poland	4.882	Colombia	0.250	Venezuela	0.900	Malaysia	0.127
4	Italy	2.644	Switzerland	4.356	Turkey	0.403	Poland	0.853	Czech Republic	0.121
5	Hungary	2.636	Austria	4.273	Belgium	0.436	Switzerland	0.833	Austria	0.106
6	Singapore	2.506	Germany	4.066	Japan	0.466	Italy	0.826	Italy	0.094
7	Austria	2.500	Greece	4.006	Sweden	0.466	Mexico	0.822	France	0.093
8	Malaysia	2.493	Venezuela	4.000	Switzerland	0.487	Austria	0.818	Hungary	0.091
9	France	2.493	Italy	3.980	France	0.487	Greece	0.800	Belgium	0.089
10	Germany	2.429	Spain	3.714	Finland	0.497	Hong Kong	0.791	Germany	0.080
11	Venezuela	2.400	France	3.699	South Korea	0.499	Spain	0.786	Singapore	0.072
12	Spain	2.393	Colombia	3.647	Denmark	0.500	France	0.771	Australia	0.071
13	Hong Kong	2.367	India	3.605	Poland	0.503	Denmark	0.769	Indonesia	0.067
14	Greece	2.366	Portugal	3.548	Italy	0.503	Germany	0.761	Mexico	0.067
15	Mexico	2.356	Indonesia	3.539	Czech Republic	0.518	Chile	0.747	India	0.060
16	India	2.339	Mexico	3.511	Germany	0.522	Belgium	0.744	Colombia	0.059
17	Belgium	2.289	Malaysia	3.507	Spain	0.525	India	0.738	South Africa	0.055
18	Chile	2.266	Hong Kong	3.500	Austria	0.526	Argentina	0.727	Norway	0.053
19	Denmark	2.248	Finland	3.482	Peru	0.554	Singapore	0.723	Hong Kong	0.051
20	New Zealand	2.222	Brazil	3.479	India	0.560	Malaysia	0.718	Argentina	0.045
21	Australia	2.206	Netherlands	3.438	Chile	0.562	Japan	0.711	Finland	0.045
22	Finland	2.188	Japan	3.353	Netherlands	0.563	Netherlands	0.686	Sweden	0.044
23	Argentina	2.182	South Africa	3.313	Greece	0.576	Portugal	0.677	China	0.040
24	Japan	2.181	Peru	3.310	South Africa	0.577	Finland	0.670	Philippines	0.040

25	Netherlands	2.157	Singapore	3.301	Mexico	0.591	New Zealand	0.667	Israel	0.038
26	Indonesia	2.135	Chile	3.266	Venezuela	0.602	Indonesia	0.663	Chile	0.038
27	Portugal	2.129	Argentina	3.250	Norway	0.614	United Kingdom	0.650	New Zealand	0.037
28	South Africa	2.115	Australia	3.246	Israel	0.620	South Africa	0.648	Spain	0.036
29	United Kingdom	2.081	Belgium	3.211	Ireland	0.641	Colombia	0.647	Peru	0.034
30	Colombia	2.059	New Zealand	3.185	Portugal	0.643	Australia	0.616	Denmark	0.034
31	China	2.050	Denmark	3.154	Philippines	0.650	Brazil	0.604	Netherlands	0.033
32	Peru	1.931	China	3.110	Singapore	0.653	China	0.600	Portugal	0.032
33	Philippines	1.920	United Kingdom	3.065	Argentina	0.653	Thailand	0.582	Japan	0.027
34	Sweden	1.911	Taiwan	3.023	Hong Kong	0.668	Norway	0.573	United Kingdom	0.023
35	Taiwan	1.903	Thailand	2.891	Canada	0.670	South Korea	0.563	Greece	0.023
36	Brazil	1.903	South Korea	2.853	Thailand	0.713	Taiwan	0.557	Taiwan	0.023
37	Thailand	1.891	Philippines	2.840	United Kingdom	0.728	Turkey	0.556	Ireland	0.022
38	Norway	1.880	Turkey	2.794	USA	0.740	Sweden	0.541	Canada	0.019
39	South Korea	1.866	Canada	2.767	Australia	0.743	Philippines	0.520	South Korea	0.018
40	Canada	1.794	Sweden	2.763	Taiwan	0.745	Ireland	0.500	Thailand	0.018
41	Turkey	1.762	Ireland	2.674	New Zealand	0.757	Peru	0.483	USA	0.011
42	Ireland	1.761	Norway	2.587	Indonesia	0.774	Canada	0.477	Brazil	0.009
43	Israel	1.750	Israel	2.577	China	0.776	USA	0.447	Pakistan	0.000
44	USA	1.641	USA	2.402	Malaysia	0.851	Israel	0.442	Turkey	0.000
45	Pakistan	1.467	Pakistan	2.133	Pakistan	0.853	Pakistan	0.433	Venezuela	0.000
Mean		2.185		3.440		0.579		0.678		0.052
Median		2.182		3.313		0.576		0.677		0.040
Standard deviation		0.328		0.742		0.149		0.133		0.037
Minimum		1.467		2.133		0.169		0.433		0.000
Maximum		3.121		6.182		0.853		0.955		0.147

5.2.2. Univariate analysis

The univariate results in Table 12 suggest that at least GDP growth, general ownership concentration, the prevalence of earnings management, capital market development, and legal shareholder protection may be associated with average country-level corporate diversification.

Table 12
Univariate summary of country-level independent variables

This table classifies the sample countries according to their ranking in the independent regression variables. Each panel shows the mean value of alternative diversification measures for different country groups as per each independent variable. The last row of each panel shows the t-statistic for a test of means between the bottom and top country quartiles or, for dummy variables, the t-statistic for a test of means between the two country groups. The variables are defined in Table A1.

Independent variable	Number of 2-digit SIC codes	Number of 4-digit SIC codes	Fraction of diversified firms	Fraction of highly diversified firms
Ln (GNI)				
Bottom 25%	2.247	3.775	0.696	0.066
Middle 50%	2.167	3.313	0.675	0.049
Top 25%	2.161	3.370	0.665	0.042
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	0.55	1.05	0.49	1.57
Ln (Mean net sales)				
Bottom 25%	2.106	3.405	0.653	0.044
Middle 50%	2.159	3.397	0.664	0.049
Top 25%	2.317	3.565	0.732	0.064
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	-1.52	-0.59	-1.39	-1.06
Debt / GNP				
Bottom 25%	2.067	3.274	0.657	0.030
Middle 50%	2.143	3.259	0.661	0.050
Top 25%	2.170	3.292	0.664	0.051
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	-0.81	-0.08	-0.12	-1.49
GDP growth				
Bottom 25%	2.259	3.971	0.728	0.053
Middle 50%	2.196	3.321	0.678	0.053
Top 25%	2.090	3.157	0.628	0.048
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	1.11	2.38 [b]	1.75 [c]	0.24
Control rights of the controlling shareholder				
Bottom 25%	1.950	2.908	0.575	0.031
Middle 50%	2.252	3.354	0.693	0.060
Top 25%	2.333	3.715	0.765	0.057
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	-3.52 [a]	-4.27 [a]	-4.49 [a]	-1.80 [c]

Accounting standards				
Bottom 25%	2.126	3.507	0.684	0.036
Middle 50%	2.233	3.414	0.701	0.053
Top 25%	2.078	3.013	0.602	0.052
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	0.37	2.50 [b]	1.52	-0.97
Analyst activity				
Bottom 25%	2.068	3.334	0.644	0.044
Middle 50%	2.192	3.407	0.675	0.050
Top 25%	2.299	3.593	0.720	0.063
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	-1.70	-0.96	-1.28	-1.02
Earnings management				
Bottom 25%	1.924	2.852	0.556	0.037
Middle 50%	2.199	3.342	0.689	0.053
Top 25%	2.330	3.667	0.725	0.063
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	-3.01 [a]	-3.52 [a]	-3.42 [a]	-1.45
Market cap / GDP				
Bottom 25%	2.055	3.245	0.637	0.042
Middle 50%	2.191	3.415	0.670	0.049
Top 25%	2.302	3.687	0.734	0.068
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	-1.99 [c]	-1.44	-1.79 [c]	-1.67
English legal origin dummy				
Yes	2.045	3.012	0.602	0.043
No	2.248	3.633	0.712	0.056
Tests of means (t-statistic)				
Yes vs. No	-1.99 [c]	-2.80 [a]	-2.73 [a]	-1.05
Shareholder rights				
Low (0 to 1)	2.423	3.754	0.811	0.066
Middle (2 to 3)	2.096	3.351	0.641	0.045
High (4 to 5)	2.111	3.110	0.644	0.044
Tests of means (t-statistic)				
High vs. Low	-2.21 [b]	-2.93 [a]	-3.00 [a]	-1.37
Uncertainty avoidance				
Bottom 25%	2.127	3.081	0.640	0.049
Middle 50%	2.118	3.347	0.656	0.048
Top 25%	2.210	3.421	0.701	0.044
Tests of means (t-statistic)				
Bottom 25% vs. Top 25%	-0.72	-2.27 [c]	-1.24	0.37

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table 13
Country-level correlations between independent regression variables

This table presents firm-level Spearman's rank correlation coefficients between the independent variables used in the regression analysis. The variables are defined in Table A1.

Independent variable	Ln (Mean net sales)	Debt / GNP	GDP growth	Control rights of the controlling shareholder	Accounting standards	Analyst activity	Earnings management	Market Cap / GDP	English legal origin dummy	Shareholder rights	Uncertainty avoidance
Ln(GNI)	0.654 [a]	0.498 [a]	0.401 [b]	-0.259	0.259	0.630 [a]	0.016	0.431 [b]	0.140	0.100	-0.055
Ln (Mean net sales)		0.525 [a]	0.492 [a]	-0.120	0.310	0.699 [a]	-0.027	0.502 [a]	-0.100	-0.119	0.017
Debt / GNP			0.434 [b]	-0.389	0.556 [a]	0.474 [b]	-0.114	0.498 [a]	0.286	0.206	-0.132
GDP growth				-0.267	0.598 [a]	0.393 [b]	-0.407 [c]	0.557 [a]	0.322 [c]	0.431 [b]	-0.301
Control rights of the controlling shareholder					-0.598 [a]	-0.067	0.528 [b]	-0.153	-0.373	-0.491 [b]	0.272
Accounting standards						0.506 [a]	-0.686 [a]	0.718 [a]	0.522 [a]	0.443 [b]	-0.678 [a]
Analyst activity							-0.141	0.623 [a]	0.044	0.010	-0.311 [c]
Earnings management								-0.290	-0.459 [b]	-0.538 [b]	0.534 [b]
Market Cap / GDP									0.359 [c]	0.364 [c]	-0.448 [b]
English legal origin dummy										0.636 [a]	-0.550 [a]
Shareholder rights											-0.351 [b]

a Significant at the 0.001 level
b Significant at the 0.01 level
c Significant at the 0.05 level

However, the results are generally weaker than the firm-level univariate results in Table 6. The most likely explanation to this phenomenon is the much lower sample size (45 countries as opposed to 12,517 firms), although the aggregate nature of the country-level explanatory variables may also affect the statistical significance of the t-tests.

The analysis suggests that the aggregate availability of debt within an economy does not seem to have an effect on diversification policies. High historical GDP growth is associated with high diversification, contrary to the hypothesis. Ownership concentration shows strong association with high average diversification. Higher accounting standards may have a weak diversification-reducing effect, whereas the analyst activity variable produces weak results. The prevalence of earnings management is clearly connected to high corporate diversification as hypothesized. Again challenging the hypotheses, developed capital markets may relate with high average diversification. Finally, English-origin legal system and formal legal shareholder protection are associated with low country-level diversification, whereas Hofstede's uncertainty avoidance index generally produces insignificant results. For a more detailed univariate analysis on legal systems and cultural regions, see Tables A4 and A5 in the Appendix.

As in the firm-level analysis in section 5.1.2., a major problem with the univariate results is raised by the interrelations between variables such as capital market development and average firm size. This, in turn, may distort the observed relationship between capital market development and diversification. Table 13 presents the correlations between the country-level independent variables. As in the firm-level part, the following section controls for this problem by employing OLS regression analysis.

5.2.3. Regression analysis

Table 14 is composed of six alternative OLS specifications. Regressions (1) to (3) use an English legal origin dummy as the proxy for investor protection, whereas specifications (4) to (6) use a shareholder rights index constructed by La Porta et al. (1997). Specifications (1) and (4) use accounting standards as the proxy for transparency, specifications (2) and (5) use earnings management, and the remaining specifications (3) and (6) use both. The specifications using only earnings management as the transparency variable have higher explanatory power than the other specifications. Similarly, the specifications including the shareholder rights index seem to yield higher R squared values than the English origin dummy

Table 14

Country-level OLS regressions

This table presents the results of OLS regressions examining the relationship between country characteristics and country-specific average diversification levels. The dependent variable is the mean number of different two-digit SIC codes. The independent variables are defined in Table A1. Number of observations is the number of countries included in each regression specification. T-statistics are in parentheses.

	Dependent variable: Average number of 2-digit SIC codes						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	Expected sign
Constant	2.457	1.676	1.369	3.284 [b]	1.923	1.514	
	(1.52)	(1.71)	(0.91)	(2.22)	(1.70)	(0.96)	
Ln (GNI)	-0.026	-0.021	-0.028	-0.012	-0.015	-0.009	
	(-0.27)	(-0.28)	(-0.31)	(-0.15)	(-0.21)	(-0.11)	
Ln (Mean net sales)	-0.065	-0.045	-0.005	-0.149	-0.081	-0.051	+
	(-0.35)	(-0.31)	(-0.03)	(-0.85)	(-0.48)	(-0.26)	
Debt / GNP	0.237	0.149	0.125	0.359	0.210	0.166	- / +
	(0.72)	(0.55)	(0.43)	(1.18)	(0.70)	(0.52)	
GDP growth	1.023	1.148 [c]	1.245 [c]	1.322 [c]	1.157 [c]	1.228 [c]	-
	(1.43)	(2.08)	(1.90)	(2.02)	(2.12)	(1.89)	
Control rights of the	1.006	0.682	0.829	0.722	0.616	0.765	- / +
controlling shareholder	(1.41)	(1.28)	(1.35)	(1.08)	(1.11)	(1.22)	
Accounting standards	-0.003		0.003	-0.006		0.003	-
	(-0.24)		(0.22)	(-0.50)		(0.28)	
Analyst activity	0.009	0.013	0.010	0.009	0.013	0.008	-
	(0.59)	(1.00)	(0.65)	(0.68)	(0.98)	(0.56)	
Earnings management		0.028 [b]	0.028 [b]		0.026 [b]	0.026 [b]	+
		(3.06)	(2.81)		(2.47)	(2.31)	
Market Cap / GDP	-0.030	0.043	0.005	0.022	0.057	0.023	-
	(-0.21)	(0.38)	(0.04)	(0.17)	(1.11)	(0.17)	
English legal origin	-0.120	-0.022	0.038				-
dummy	(-0.52)	(-0.13)	(0.19)				
Shareholder rights				-0.103 [c]	-0.031	-0.025	-
				(-1.82)	(-0.43)	(-0.33)	
Uncertainty avoidance	0.000	0.000	0.000	0.000	0.000	0.000	+
	(0.10)	(-0.12)	(-0.07)	(-0.06)	(-0.12)	(-0.15)	
Adjusted R squared	-0.128	0.355	0.238	0.071	0.366	0.245	
No. of observations	23	20	19	23	20	19	

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

models, however the difference is quite small. The logarithm of country GNI serves as a control variable for the aggregate size of the economy. To test the robustness of the regression results, I run the exactly same regressions again with two alternative average diversification level measures: the average number of four-digit SIC codes, and the fraction of diversified

firms at the two-digit SIC level. The results are presented in Tables A6 and A7 (see Appendix) and are very similar to those in Table 14.

The results indicate some differences with the firm-level results, however most of the variables exhibit statistically insignificant coefficients. Average firm size, as measured by the logarithm of mean net sales, has an insignificant negative effect on diversification instead of a positive one that would intuitively seem more plausible. The general availability of debt in an economy (aggregate debt to GNP) similarly exhibits insignificant results (except for some specifications in Table A6).

High short-term historical real GDP growth is quite robustly associated with high average diversification, contradicting the hypothesis. One explanation could be that GDP growth as such may not be a good proxy for general country-level investment opportunities. However, a perhaps more likely explanation is that countries experiencing the highest GDP growth rates generally tend to be emerging markets. As discussed in section 3.1.7., corporate diversification is likely to be more prevalent in these countries because of the potential benefits associated with larger firm size. This explanation is consistent with Khanna and Palepu (2000).

Also clearly contradicting my firm-level results, concentrated country-level ownership seems to be associated with high diversification levels. However, the relationship is statistically insignificant in each two-digit SIC specification. A prominent explanation for the difference between firm-level and country-level results stems from the different nature of the data used. The firm-level analysis uses plain Worldscope data indicating the direct voting share of the largest shareholder, whereas the country-level analysis utilizes data on average *ultimate* control rights (i.e. both direct and indirect control rights) of the largest shareholder, gathered by La Porta, Lopez-de-Silanes, and Shleifer (1999). This distinction may have important implications because indirect control rights through other entities and pyramidal structures may in many cases multiply the direct control enjoyed by the controlling shareholder.

Neither accounting standards nor analyst following explains country-level diversification: the results for both are weak. In contrast, earnings management produces the most robust result in the country-level analysis as the coefficients are consistent and significant across alternative specifications and diversification measures. As already suggested by the univariate results, countries where earnings management is common practice also exhibit high corporate

diversification levels. The result provides strong support for the hypothesis that the insiders of diversified firms enjoy private benefits that they seek to hide by smoothing earnings and concealing losses. The result is very similar in nature with the study by Leuz, Nanda, and Wysocki (2003) and, together with the somewhat weaker firm-level results regarding the transparency variables, supports the notion that diversified firms suffer from both agency and transparency problems.

Looking at the remaining variables, capital market development as well as Hofstede's uncertainty avoidance both yield weak and mixed coefficients. Investor protection may be connected with lower country-level diversification as both the English legal origin dummy and the shareholder rights index decrease with average diversification. The coefficients are consistently negative, however only specification (4) produces a significant negative coefficient for the shareholder rights index. Although the link indeed may exist, the results provide only some support for the idea that better-quality investor protection has the potential to reduce wasteful projects such as corporate diversification programs. Consistent with the ideas presented by e.g. La Porta et al. (2000b)[12], it seems that the nature of corporate diversification as an expropriation vehicle is too indirect as to induce a robust association with poor legal protection of investors.

The problems related to my country-level OLS analysis are clear. Most importantly, the lack of data for some independent variables in several countries results in a small sample size of only 19 to 23 countries, depending on the specification. This naturally has an adverse effect on the significance of the coefficients. Second, some of the variables are highly correlated with each other (see Table 13) and this in turn results in potential multicollinearity problems that might distort the results. These problems may partly explain why some of the country-level results somewhat conflict with the firm-level results. It is also possible that some of the explanatory data used are outdated and using up-to-date inputs might change the results to some extent. However, country-level variables such as ownership concentration are unlikely to change rapidly and hence using data up to only ten years old is unlikely to be a major issue.

[12] See section 3.1.8.

5.3. Diversification trends 1997-2001

I start the analysis on global diversification trends with all sample firms, regardless of whether individual firms have arrived in or left the Worldscope database in any single year. Panel A of Table 15 indicates that a major decrease in average diversification occurred in 1998, when the average number of two-digit SIC codes dropped from 2.066 to 1.989 and the fraction of diversified firms from 0.61 to 0.58. The remaining sample period 1999-2001 shows only insignificant movements. Hence, the aggregate change from 1997 to 2001 remains significantly negative, however this change is clearly driven by the drop in 1998. Thus it does not seem justified to interpret the aggregate change as evidence of a longer-term trend toward corporate focus. Looking at the year-by-year changes in the number of eligible firms included in the database makes this interpretation even more implausible. The figures suggest that new firms have been added to Worldscope each year (expect in 2001, when the number oddly drops). As already mentioned in section 4.2.3., the firms that have been added are likely to be smaller firms that are typically less diversified (as the firm-level results clearly show). Hence, the addition of new firms in the database potentially creates a downward bias that manifests itself in Panel A.

To control for the bias, I next use a subsample of 6,733 firms that have the required data available in each year of the sample period. The results in Panel B of Table 15 provide striking support for the downward bias hypothesis. The subsample exhibits consistent annual *increases* in diversification instead of decreases as Panel A would seem to suggest. In just four years, the average number of two-digit industries increased by 0.14 from 2.118 to 2.258 and the fraction of diversified firms by nearly six percentage points from 0.634 to 0.693, both highly significant aggregate changes. All annual diversification changes in each alternative diversification measure are positive, casting heavy doubt on the anecdotal evidence suggesting a continued trend toward corporate focus in the late 1990's. On the contrary, it seems that at least in larger firms, the trend has been toward higher diversification.

It is again possible that the results in Table 15 are dominated by large changes in countries dominating the sample, namely United States and Japan. To examine whether the trend toward higher corporate diversification is truly global or not, I next examine average country-level diversification each year 1997-2001. I first calculate the average number of two-digit SIC segments for all included firms in each country, and then use a subsample of firms with

Table 15
Firm-level diversification trends 1997-2001

This table presents the yearly mean firm-level diversification level across the sample firms from 1997 to 2001. Panel A presents the results for all firms included in Worldscope, selected using the procedure described in Table 2. Panel B presents the results for firms that have the necessary data available for the entire 1997-2001 period. In both panels, t-statistics for a test of means is presented for both one-year changes and for the total change from 1997 to 2001.

Panel A: Average diversification level by year, all firms

Year	Number of firms	Number of 2-digit SIC codes	Number of 4-digit SIC codes	Fraction of diversified firms	Fraction of highly diversified firms
1997	10929	2.066	3.166	0.610	0.0391
1998	12154	1.989	3.047	0.580	0.0351
1999	13595	1.979	3.044	0.587	0.0327
2000	14190	1.985	3.041	0.591	0.0328
2001	12613	2.000	3.041	0.601	0.0335
Test of means (t-statistics)					
1998 vs. 1997		-5.18 [a]	-5.15 [a]	-4.62 [a]	-1.58
1999 vs. 1998		-0.71	-0.13	1.01	-1.10
2000 vs. 1999		0.50	-0.16	0.75	0.08
2001 vs. 2000		1.09	0.00	1.62	0.28
2001 vs. 1997		-4.52 [a]	-5.58 [a]	-1.48	-2.30 [b]

Panel B: Average diversification level by year for firms with data for the entire period

Year	Number of firms	Number of 2-digit SIC codes	Number of 4-digit SIC codes	Fraction of diversified firms	Fraction of highly diversified firms
1997	6733	2.118	3.328	0.634	0.044
1998	6733	2.168	3.440	0.653	0.047
1999	6733	2.195	3.517	0.666	0.049
2000	6733	2.228	3.558	0.682	0.051
2001	6733	2.258	3.600	0.693	0.053
Test of means (t-statistics)					
1998 vs. 1997		2.44 [b]	3.61 [a]	2.27 [b]	0.99
1999 vs. 1998		1.35	2.46 [b]	1.64	0.52
2000 vs. 1999		1.63	1.29	1.97 [b]	0.47
2001 vs. 2000		1.45	1.35	1.34	0.54
2001 vs. 1997		6.90 [a]	8.75 [a]	7.22 [a]	2.53 [b]

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

data available for the entire sample period. Panel A of Table 16 indicates that several countries exhibit a significant aggregate change in the four-year period, however no consistent pattern emerges. The general direction seems to be slightly toward more focus. 26 countries experience a negative aggregate change, however only six of the changes are statistically significant at the five-percent level.

I next continue the analysis by excluding firms with insufficient data. The results reveal that the trend toward increased corporate diversification suggested by Panel B of Table 16 is indeed global in nature instead of being just a reflection of a strong trend in the United States or Japan. Although both of these countries do exhibit a significant increase in average diversification, 31 other countries exhibit an increase, too. Only nine countries show a decrease in average diversification over the period, and none of these changes are statistically significant. In contrast, 9 countries (Brazil, China, Greece, Japan, South Korea, Spain, Taiwan, Thailand, and the United States) exhibit a positive change that is significant at the five-percent level. As a curiosity, the aggregate change in Finland during the four-year period is zero.

The results provide evidence that in the late 1990's and early 2000's, the trend toward corporate focus documented in previous decades may have turned into a trend toward diversification. The reasons behind this observation may be several. First, the mergers and acquisitions spree of the late 1990's may have led to higher diversification levels in many countries. Alternatively, it may well be that the recent corporate scandals in both the United States and Europe are merely a reflection of broader corporate governance problems that prevailed in the sample period. These problems may have translated into higher diversification levels. Also, it is possible that a change in segment reporting practices has occurred in either Worldscope or firms themselves. However, to my knowledge any supporting evidence on such a change does not exist. Finally, survival bias may affect the results. Firms that stay alive (and thus remain in Worldscope) are likely to grow over time, often through acquisitions. Any single diversifying acquisition removes one firm from the database and while the buying firm remains in the database it experiences an increase in its diversification level. Hence, each diversifying acquisition effectively increases the average diversification level of the database. Although my sample period is very short and it is very difficult to quantify the potential effect of the survival bias, it quite likely accounts for some part of the results in Panel B.

Table 16
Country-level diversification trends 1997-2001

This table presents the yearly mean number of two-digit SIC codes in each sample country from 1997 to 2001. Panel A presents the results for firms included in Worldscope, selected using the procedure described in Table 2. Panel B presents the results for firms that have the necessary data available for the entire 1997-2001 period. The table also presents t-statistics for a test of means between years 1997 and 2001, as well as the fraction of countries exhibiting positive and negative change in average diversification each year.

Panel A: Average country-level diversification by year, all firms

Country	Year					2001 vs. 1997 (t-statistics)
	1997	1998	1999	2000	2001	
Argentina	2.240	2.233	2.226	2.133	2.182	-0.21
Australia	2.073	2.338	2.217	2.171	2.206	1.05
Austria	2.650	2.578	2.594	2.462	2.500	-0.58
Belgium	2.625	2.704	2.500	2.374	2.289	-1.70 [c]
Brazil	1.729	1.752	1.835	1.859	1.903	1.63
Canada	1.787	1.716	1.710	1.769	1.794	0.10
Chile	2.362	2.250	2.255	2.114	2.266	-0.47
China	1.526	1.494	1.444	1.745	2.050	3.18 [a]
Colombia	1.368	1.579	1.722	2.000	2.059	2.31 [b]
Czech Republic	3.225	3.293	3.089	3.162	3.121	-0.33
Denmark	2.233	2.260	2.225	2.339	2.248	0.10
Finland	2.500	2.274	2.210	2.215	2.188	-1.88 [c]
France	2.926	2.690	2.615	2.560	2.493	-5.37 [a]
Germany	2.889	2.721	2.558	2.500	2.429	-5.52 [a]
Greece	2.151	2.378	2.368	2.407	2.366	1.58
Hong Kong	2.366	2.404	2.500	2.250	2.367	0.01
Hungary	2.278	2.591	2.808	2.885	2.636	1.06
India	2.241	2.335	2.389	2.295	2.339	0.92
Indonesia	2.044	2.047	2.105	2.062	2.135	0.53
Ireland	2.318	2.244	2.045	1.849	1.761	-2.48 [b]
Israel	2.077	1.933	1.939	1.861	1.750	-1.07
Italy	2.896	2.788	2.793	2.738	2.644	-1.69 [c]
Japan	2.210	2.270	2.133	2.168	2.181	-0.81
Malaysia	2.550	2.716	2.616	2.659	2.493	-0.29
Mexico	2.150	2.058	2.127	2.206	2.356	1.21
Netherlands	2.491	2.346	2.242	2.154	2.157	-2.43 [b]
New Zealand	2.600	2.438	2.286	2.341	2.222	-1.23
Norway	2.048	1.900	1.848	1.943	1.880	-0.98
Pakistan	1.595	1.531	1.587	1.563	1.467	-0.80
Peru	1.600	1.591	1.458	1.846	1.931	1.10
Philippines	1.609	1.600	1.561	1.714	1.920	1.17
Poland	2.684	3.000	3.133	3.000	2.676	-0.02
Portugal	1.591	1.750	1.849	2.148	2.129	2.45 [b]
Singapore	2.573	2.671	2.643	2.394	2.506	-0.34
South Africa	2.497	2.829	2.199	2.106	2.115	-2.57 [b]
South Korea	1.976	2.088	2.113	1.827	1.866	-1.31
Spain	1.970	2.137	2.178	2.280	2.393	2.69 [a]
Sweden	2.112	1.940	1.933	1.975	1.911	-1.52
Switzerland	2.940	2.833	2.770	2.771	2.722	-1.13
Taiwan	1.697	1.707	1.698	1.823	1.903	1.87 [c]
Thailand	1.526	1.538	1.496	1.709	1.891	2.89 [a]
Turkey	1.388	1.448	1.559	1.606	1.762	2.52 [b]
United Kingdom	2.247	2.113	2.089	2.053	2.081	-2.95 [a]
USA	1.618	1.573	1.610	1.626	1.641	1.16
Venezuela	3.083	3.000	3.091	2.588	2.400	-1.72
Average	2.206	2.215	2.186	2.183	2.185	
Median	2.233	2.250	2.199	2.154	2.182	
Standard deviation	0.480	0.477	0.453	0.381	0.328	
Minimum	1.368	1.448	1.444	1.563	1.467	
Maximum	3.225	3.293	3.133	3.162	3.121	
Negative change %		48.9 %	57.8 %	46.7 %	44.4 %	57.8 %
Positive change %		51.1 %	42.2 %	53.3 %	55.6 %	42.2 %
No change %		0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Panel B: Average country-level diversification by year, firms with data for the entire period						
	Year					2001 vs. 1997
Country	1997	1998	1999	2000	2001	(t-statistics)
Argentina	2.333	2.333	2.333	2.500	2.556	0.53
Australia	2.124	2.191	2.303	2.326	2.416	1.47
Austria	2.938	3.031	3.063	3.031	2.969	0.08
Belgium	2.923	3.000	3.000	2.949	2.949	0.09
Brazil	1.730	1.831	1.933	2.067	2.056	2.17 [b]
Canada	1.784	1.823	1.844	1.944	1.965	1.92 [c]
Chile	2.350	2.325	2.300	2.400	2.425	0.28
China	1.475	1.475	1.475	1.705	1.918	2.56 [b]
Colombia	1.400	1.600	1.733	2.000	2.000	1.72 [c]
Czech Republic	3.348	3.391	3.087	3.087	3.043	-0.72
Denmark	2.471	2.402	2.402	2.483	2.391	-0.43
Finland	2.365	2.404	2.423	2.308	2.365	0.00
France	3.120	3.146	3.124	3.124	3.120	0.00
Germany	2.965	3.014	2.982	2.975	2.933	-0.29
Greece	2.123	2.404	2.368	2.456	2.491	2.29 [b]
Hong Kong	2.304	2.357	2.411	2.375	2.607	1.22
Hungary	2.067	2.200	2.600	2.533	2.400	0.94
India	2.280	2.349	2.414	2.387	2.478	1.62
Indonesia	2.000	2.000	2.081	2.129	2.081	0.40
Ireland	2.310	2.310	2.241	2.207	2.241	-0.21
Israel	1.563	1.625	1.625	1.688	1.688	0.40
Italy	2.983	2.983	3.017	3.034	2.966	-0.04
Japan	2.202	2.258	2.281	2.297	2.360	3.88 [a]
Malaysia	2.292	2.396	2.396	2.563	2.646	1.39
Mexico	2.138	2.121	2.172	2.328	2.379	1.20
Netherlands	2.528	2.491	2.463	2.435	2.435	-0.63
New Zealand	2.400	2.520	2.480	2.480	2.560	0.58
Norway	2.232	2.143	2.107	2.268	2.196	-0.15
Pakistan	1.676	1.676	1.735	1.706	1.735	0.32
Peru	1.615	1.615	1.462	1.846	1.692	0.28
Philippines	1.657	1.600	1.600	1.771	1.771	0.49
Poland	2.778	2.926	3.185	3.148	3.074	0.80
Portugal	1.647	1.676	1.794	2.088	2.118	1.95 [c]
Singapore	2.561	2.585	2.634	2.756	2.854	1.00
South Africa	2.803	2.918	2.902	2.705	2.639	-0.61
South Korea	1.953	2.088	2.106	2.259	2.253	2.56 [b]
Spain	2.034	2.086	2.207	2.397	2.431	2.23 [b]
Sweden	2.146	2.146	2.220	2.317	2.354	1.07
Switzerland	3.174	3.198	3.198	3.128	3.174	0.00
Taiwan	1.646	1.646	1.646	1.793	2.049	3.46 [a]
Thailand	1.474	1.518	1.500	1.658	1.719	2.34 [b]
Turkey	1.396	1.417	1.417	1.438	1.583	1.25
United Kingdom	2.270	2.278	2.295	2.261	2.249	-0.31
USA	1.659	1.730	1.787	1.815	1.827	5.08 [a]
Venezuela	3.000	3.000	3.000	3.111	3.111	0.21
Average	2.227	2.272	2.297	2.362	2.384	
Median	2.232	2.278	2.300	2.328	2.391	
Standard deviation	0.528	0.531	0.521	0.462	0.441	
Minimum	1.396	1.417	1.417	1.438	1.583	
Maximum	3.348	3.391	3.198	3.148	3.174	
Negative change %		17.1 %	34.3 %	40.0 %	42.9 %	20.0 %
Positive change %		82.9 %	62.9 %	80.0 %	68.6 %	73.3 %
No change %		28.6 %	31.4 %	8.6 %	17.1 %	6.7 %

a Significant at the 0.01 level

b Significant at the 0.05 level

c Significant at the 0.10 level

6. CONCLUSIONS

Corporate diversification has received a lot of attention in finance research during the past decade. While the value effects of firm-level diversification have been studied extensively, the level of diversification itself has not received much attention. Corporate diversification research utilizing international data is also rare as most studies use the abundant U.S. data. Also, few studies have attempted to document corporate diversification trends in the past decades, and none so after 1997. This study contributes to the existing literature by studying a sample of 12,571 firms in 45 countries and by examining the cross-section determinants of firm- and country-level corporate diversification at fiscal year end 2001. Finally, this study examines global corporate diversification trends with firm-level industry segment data from 1997-2001.

6.1. Determinants of corporate diversification

Using firm-level cross-section data on industrial segments, financial statements, ownership structure, disclosure quality, and analyst activity, I examine the determinants of firm-level corporate diversification. Diversification is prevalent across the sample firms: 60 percent of the firms operate in more than one unrelated SIC segment. An even higher fraction has entered into unrelated *or* related diversification as 82.5 percent report at least two four-digit SIC codes.

Consistent with previous research, I find that diversified firms fail to exploit their theoretically higher debt capacity. Consistent with the widely documented diversification discount, I find that both sales growth and operating margin seem to decrease with corporate diversification. This result supports the argument that investment opportunities and accounting performance of diversified firms are generally inferior to those of focused firms. In line with the hypothesis that blockholders provide companies with significant monitoring benefits regarding managerial actions, diversification and block ownership exhibit a robust negative relation. The risk-reduction hypothesis and the private benefits blockholders may derive from diversification thus seem to be dominated by the monitoring effect. I also find that state ownership, proxied with a privatization dummy, is negatively related to corporate diversification, supporting the hypothesis that state firms are typically set up for carrying out a

specific (focused) purpose. I also find weak support for the notion that firm-level diversification generally reduces transparency. A U.S. listing, U.S. Gaap accounting standards compliance, and analyst following are all negatively related to firm-level diversification, however the results are generally weak. Finally, the evidence from cross dummies does not provide any support for the idea that diversified firms would perform better in countries where average diversification levels are the highest. Drawing on the results, I conclude that firm-level diversification is associated with poor investment opportunities, low profitability, dispersed non-state ownership, weak disclosure quality, and poor transparency. Managerial incentives in the form of stock options do not seem to play a role in explaining diversification policies.

I also use country-level data from various sources to examine the factors affecting average corporate diversification levels across the sample countries. Diversification seems to be the norm in most countries: at least 50 percent of the sample firms operate in at least two unrelated industrial segments in 40 out of 45 sample countries. The descriptive results further indicate that firms in Eastern Europe, Southeast Asia, and German-speaking countries tend to diversify more, whereas firms in English-speaking countries tend to diversify considerably less. Scandinavian countries stand somewhere in the middle, with firms in Finland and Denmark diversifying somewhat more than firms in Sweden and Norway.

The results indicate that high real GDP growth is associated with high country-level diversification. A likely explanation is that the fastest growing economies generally are emerging markets where larger firm size and hence diversification may sometimes be beneficial. I also find weak evidence that concentrated country-level ownership is associated with high diversification levels. The conflict with the firm-level results is likely to be driven by data differences. The transparency and agency cost hypotheses receive additional support from the results regarding earnings management: countries where managing earnings is most common exhibit high corporate diversification levels. Although the result does not say anything about firm-level practices, it seems clear that insiders in these countries try to conceal their private benefits by managing the earnings of their diversified firms. I also find that investor protection may be associated with lower diversification. The results show weak evidence that high-quality legal shareholder protection has a potential to reduce corporate diversification. Finally, neither the general availability of debt in an economy, nor capital market development explain country-level average diversification levels. Summing up the

country-level evidence, high average diversification seems to be associated with high GDP growth, possibly concentrated ownership, the prevalence of earnings management, and inferior legal investor protection.

6.2. Corporate diversification trends 1997-2001

Using firm-level industry segment data from the period 1997-2001, I study international trends in corporate diversification. My results provide no support for the anecdotal evidence suggesting that corporate focus has maintained its importance as one of the most commonly cited corporate strategies. If anything, the trend has turned from focus toward diversification. In a subsample of firms with segment data available for the entire sample period, the fraction of diversified firms increased by nearly six percentage points between 1997 and 2001. Furthermore, the trend is observed in most of the sample countries. Almost 75 percent of the countries exhibit a positive change in their average diversification level over the four-year period.

6.3. Limitations

There are several potential shortcomings to this study. First, the data sources used for some explanatory variables may be outdated. For instance, the country-level ownership concentration data is obtained from La Porta, Lopez-de-Silanes, and Shleifer (1999) who in turn use data dating back to as far as 1995. While country-level institutional variables such as ownership patterns are likely to change slowly, using up-to-date data might still have some impact on the results. Second, despite the large underlying basic sample of nearly 13,000 firms, the regressions contain considerably fewer firms because of the lack of sufficient independent variable data for most sample firms. While this problem may weaken the generality of the regression results over the entire sample, there is not much one can do to alleviate the problem. Especially problematic are firms outside the major industrial countries, however improving the detail level of major databases such as Worldscope is a slow process that from a research perspective calls for patience. Third, if future research on the value effects of corporate diversification somehow reverses the existing value destruction view, the results will need to be interpreted somewhat differently. However, under the current view diversification (at least in its unrelated form) is detrimental to shareholder value and hence my results appear relatively stable. Finally, the partially conflicting firm- and country-level results

may also suggest that the study may suffer from some methodological flaws. However, the problems related to the country-level data discussed in section 5.2.3. are more likely to explain these differences.

6.4. Suggestions for future research

There are several interesting research topics that might prove fruitful in further understanding corporate diversification. For example, earnings management and diversification seem to be robustly associated, and this relationship could be studied further with firm-level data. Similarly, studying state-owned and privatized firms with more detailed and reliable data could deliver better insight on the nature and effects of state ownership and privatizations. On the value effect side, a comprehensive international study on diversification's value effects around the world would make a huge difference for researchers trying to determine whether diversification is quantitatively value-reducing on a global scale. An answer to this question would also help in better understanding the country-level results of this study. Repeating my analysis with alternative diversification measures, such as those suggested by Fan and Lang (2000) or Villalonga (2003), could help confirm the robustness of the results. Finally, a thorough time-series analysis of the determinants of firm-level diversification changes could provide a more dynamic view on firm-level diversification policies.

7. APPENDIX

Table A1
Variable descriptions

This table presents the descriptions and sources of all firm- and country-specific variables used in the study.

Panel A: Firm-level analysis (Tables 6-9)		
Variable	Description	Source
Ln (Net sales)	Natural logarithm of a firm's net sales in the latest fiscal year.	Worldscope
Debt / assets	The ratio of a firm's total debt to total assets. Total debt is defined as short-term debt + current portion of long-term debt + long-term debt.	Worldscope
Sales growth	A firm's total real net sales growth rate in the last four fiscal years.	Worldscope, World Development Indicators database (World Bank 2002), national sources
Operating margin	The ratio of a firm's operating income to net sales.	Worldscope
Stock options dummy	A dummy variable that equals one if a firm received something from employee stock options, benefit plans, performance share awards, warrants, and employee stock purchases in the last fiscal year, and zero otherwise.	Worldscope
Block dummy 20%	A dummy variable that equals one if a firm has a shareholder that controls at least 20% of votes, and zero otherwise.	Worldscope
Privatized firm dummy	A dummy variable that equals one if a firm has been entirely or partly privatized through a public share offering, and zero otherwise.	Megginson (2000)
U.S. exchange dummy	A dummy variable that equals one if a firm is listed in one of the eight U.S. exchanges recognized by Worldscope, and zero otherwise.	Worldscope
U.S. Gaap dummy	A dummy variable that equals one if a firm follows the US Gaap accounting standards and procedures, and zero otherwise.	Worldscope
Analysts	The number of earnings estimates for the next fiscal year recorded in the I/B/E/S database.	Worldscope

Panel B: Country-level analysis (Tables 12-14)		
Variable	Description	Source
Ln (GNI)	Natural logarithm of a country's aggregate gross national income (in US dollars) in 2001.	World Development Indicators database (World Bank August 2002), national sources
Ln (Mean net sales)	Natural logarithm of the mean net sales of all sample firms in a given country.	Worldscope

Debt / GNP	Ratio of the sum of bank debt of the private sector and outstanding non-financial bonds to GNP in 1994, or last available.	La Porta et. al (1997)
GDP growth	Total GDP growth divided by total inflation 1997-2001 in a given country. Inflation is measured with the GDP deflator.	World Development Indicators database (World Bank August 2002), national sources
Control rights of the controlling shareholder	The average fraction of a firm's voting rights owned by its controlling shareholder in a given country. Control is measured by combining a shareholder's direct (i.e. through shares registered in her name) and indirect (i.e. thrgough shares held by entities that, in turn, she controls) voting rights in the firm. A group of n companies form a control chain if each firm 1 through n-1 controls the consecutive firm. A firm is defined as having a controlling shareholder if the sum of her direct and indirect voting rights exceeds 10 percent.	La Porta et. al (2002)
Accounting standards	Assessment of the average accounting level of accounting standards followed in a given country. The index was created by examining and rating firms' 1990 annual reports on their inclusion or omission of 90 items. The index ranges from zero to 90, with lower scores for lower standards.	La Porta et. al (1998)
Analyst activity	The mean number of analysts following the largest 30 firms by market capitalization in a given country in 1996. Only domestic and non-financial and non-utility companies are included.	Chang, Khanna, and Palepu (2000)
Earnings management	Originally called "Aggregate earnings management score", this index assesses the prevalence of earnings management in a given country. The index is computed as a country's mean rank among 31 countries across four alternative earnings management variables measuring earnings smoothing and earnings discretion. The index ranges from one to 31, with lower scores for less earnings management.	Leuz, Nanda, and Wysocki (2003)
Market cap / GDP	The ratio of a country's total stock market capitalization to GDP in 2000.	World Exchanges Federation, World Development Indicators database (World Bank August 2002), national sources
English legal origin dummy	A dummy variable that equals one if the legal system in a given country is of English origin, and zero otherwise.	La Porta et. al (1997, 1999)
Shareholder rights index	Originally called "antidirector rights", this variable is an index aggregating shareholder rights in a given country. The index ranges from zero to five, with lower scores for lower shareholder rights.	La Porta et. al (1997)
Uncertainty avoidance index	The index indicates the extend to which a society feels threatened by ambiguous situations and tries to avoid them by providing rules, believing in absolute truths, and refusing to tolerate deviance. The index ranges from zero to 100, with lower scores for less uncertainty avoidance.	Hofstede (1991)

Panel C: Additional descriptive results (Tables A4-A5)		
Variable	Description	Source
Origin of the legal system	The legal origin of the Company Law or Commercial Code of a given country.	La Porta et. al (1997, 1999)
French legal origin	A dummy variable that equals one if the legal system in a given country is of French origin, and zero otherwise.	La Porta et. al (1997, 1999)
German legal origin	A dummy variable that equals one if the legal system in a given country is of German origin, and zero otherwise.	La Porta et. al (1997, 1999)
Scandinavian legal origin	A dummy variable that equals one if the legal system in a given country is of Scandinavian origin, and zero otherwise.	La Porta et. al (1997, 1999)
Socialist legal origin	A dummy variable that equals one if the legal system in a given country is of Socialist origin, and zero otherwise.	La Porta et. al (1999)
Hofstede's regions	Groupings of nations based on the similarity of their cultural profiles.	Licht et. al (2001)

Table A2

Firm-level OLS regressions 2

This table presents the results of OLS regressions examining the relationship between firm characteristics and corporate diversification. The dependent variable is the number of four-digit SIC codes. The independent variables are defined in Table A1. Industries are defined broadly according to the SIC division structure. Number of observations is the number of firms included in each regression specification. T-statistics are in parentheses.

	Dependent variable: Number of 4-digit SIC codes						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	Expected sign
Constant	-2.728 [a]	-2.440 [a]	-2.275 [a]	-1.312	-1.177	-0.835	
	(-3.12)	(-2.70)	(-2.35)	(-0.74)	(-0.66)	(-0.45)	
Ln (Net sales)	0.290 [a]	0.286 [a]	0.289 [a]	0.297 [a]	0.298 [a]	0.293 [a]	+
	(12.77)	(11.71)	(12.65)	(9.48)	(9.46)	(9.32)	
Debt / assets	-0.145	-0.162	-0.158	-0.017	-0.036	-0.040	- / +
	(-1.05)	(-1.07)	(-1.14)	(-0.08)	(-0.16)	(-0.18)	
Sales growth	-0.0006 [c]	-0.0006 [c]	-0.0006 [c]	-0.0005	-0.0005	-0.0005	-
	(-1.75)	(-1.75)	(-1.75)	(-1.37)	(-1.43)	(-1.38)	
Operating margin	-0.321 [b]	-0.249 [c]	-0.306 [b]	-0.200	-0.194	-0.178	-
	(-2.32)	(-1.69)	(-2.21)	(-1.17)	(-1.14)	(-1.04)	
Stock options dummy	0.076	0.072	0.081	-0.168	-0.169	0.163	-
	(0.90)	(0.78)	(0.95)	(1.40)	(1.41)	(1.36)	
Block dummy 20%	-0.175 [b]	-0.168 [b]	-0.176 [b]	-0.177	-0.175	-0.181 [c]	- / +
	(-2.39)	(-2.12)	(-2.38)	(-1.64)	(-1.62)	(-1.67)	
Privatized firm dummy	0.013	-0.359	0.021	-0.269	-0.276	-0.197	- / +
	(0.04)	(-0.86)	(0.06)	(-0.58)	(-0.60)	(-0.42)	
U.S. exchange dummy		-0.119			-0.171		-
		(-0.81)			(-0.55)		
U.S. Gaap dummy			-0.438			-0.396	-
			(-1.01)			(-0.66)	
Analysts	-0.010 [c]	-0.010 [c]	-0.009	-0.010	-0.010	-0.010	-
	(-1.73)	(-1.70)	(-1.61)	(-1.38)	(-1.35)	(-1.37)	
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Cross dummies	No	No	No	Yes	Yes	Yes	
Adjusted R squared	0.245	0.227	0.245	0.248	0.247	0.247	
No. of observations	2187	1946	2148	1338	1336	1317	

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table A3
Firm-level OLS regressions 3

This table presents the results of OLS regressions examining the relationship between firm characteristics and corporate diversification. The dependent variable is the sales-based Herfindahl index. The independent variables are defined in Table A1. Industries are defined broadly according to the SIC division structure. Number of observations is the number of firms included in each regression specification. T-statistics are in parentheses.

	Dependent variable: Sales-based Herfindahl index						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	Expected sign
Constant	1.052 [a]	1.053 [a]	1.058 [a]	0.525 [c]	0.530 [c]	0.481	
	(6.82)	(6.67)	(6.08)	(1.70)	(1.70)	(1.48)	
Ln (Net sales)	-0.023 [a]	-0.022 [a]	-0.022 [a]	-0.019 [a]	-0.019 [a]	-0.018 [a]	-
	(-5.22)	(-4.74)	(-5.00)	(-3.26)	(-3.23)	(-3.06)	
Debt / assets	-0.024	-0.039	-0.023	-0.090 [b]	-0.088 [b]	-0.088 [b]	- / +
	(-0.94)	(-1.39)	(-0.89)	(-2.18)	(-2.12)	(-2.12)	
Sales growth	0.0002 [c]	0.0002 [c]	0.0002 [c]	0.0002 [c]	0.0002 [c]	0.0002 [c]	+
	(1.85)	(1.80)	(1.86)	(1.78)	(1.79)	(1.80)	
Operating margin	0.026	0.032	0.021	0.012	0.013	0.008	+
	(1.04)	(1.22)	(0.84)	(0.40)	(0.44)	(0.27)	
Stock options dummy	-0.015	-0.015	-0.015	0.024	0.023	0.024	+
	(-0.99)	(-0.90)	(-0.96)	(1.13)	(1.10)	(1.16)	
Block dummy 20%	0.032 [b]	0.022	0.032 [b]	0.002	0.001	0.001	- / +
	(2.32)	(1.50)	(2.31)	(0.09)	(0.03)	(0.03)	
Privatized firm dummy	-0.146	-0.174 [c]	-0.145 [c]	-0.226 [b]	-0.223 [b]	-0.226 [b]	- / +
	(-1.72)	(-1.74)	(-1.71)	(-2.12)	(-2.10)	(-2.13)	
U.S. exchange dummy		-0.017			-0.006		+
		(-0.68)			(-0.11)		
U.S. Gaap dummy			-0.022			0.017	+
			(-0.26)			(0.16)	
Analysts	0.001	0.001	0.001	0.002	0.002	0.002	+
	(0.96)	(0.85)	(1.20)	(1.39)	(1.38)	(1.59)	
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	
Cross dummies	No	No	No	Yes	Yes	Yes	
Adjusted R squared	0.161	0.166	0.156	0.187	0.186	0.184	
No. of observations	1780	1586	1751	1079	1077	1062	

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table A4
Legal origin and country-level corporate diversification

This table classifies the sample countries according to their legal origin. The table shows the mean value of four alternative diversification measures across five different legal origins, and the t-statistics for tests of means between all legal origin pairs.

Variable	Number of 2-digit SIC codes	Number of 4-digit SIC codes	Fraction of diversified firms	Fraction of highly diversified firms
Origin of the legal system				
English origin	2.045	3.012	0.602	0.043
French origin	2.199	3.484	0.703	0.045
German origin	2.267	3.654	0.707	0.065
Scandinavian origin	2.057	2.996	0.638	0.044
Socialist origin	2.621	4.873	0.829	0.100
Tests of means (t-statistic)				
English vs. French	-1.51	-3.27 [a]	-2.36 [b]	-0.13
English vs. German	-1.36	-2.55 [b]	-1.75 [c]	-1.16
English vs. Scandinavian	-0.07	0.06	-0.53	-0.05
English vs. Socialist	-2.87 [b]	-4.75 [a]	-3.08 [a]	-2.79 [b]
French vs. German	-0.54	-0.80	-0.07	-1.19
French vs. Scandinavian	1.12	2.42 [b]	1.03	0.04
French vs. Socialist	-2.73 [b]	-4.11 [a]	-1.84 [c]	-3.01 [a]
German vs. Scandinavian	1.11	1.77	0.93	0.82
German vs. Socialist	-1.44	-1.99 [c]	-1.38	-1.14
Scandinavian vs. Socialist	-2.36 [c]	-2.77 [b]	-2.02 [c]	-2.39 [c]

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table A5
Cultural region and country-level corporate diversification

This table classifies the sample countries according to their cultural region as identified by Hofstede (1991). The table shows the mean value of alternative diversification variables across different cultural regions, and the t-statistics for tests of means between all region pairs.

Variable	Number of 2-digit SIC codes	Number of 4-digit SIC codes	Fraction of diversified firms	Fraction of highly diversified firms
Hofstede's regions				
Anglo	1.974	2.950	0.572	0.034
Asian	2.097	3.140	0.636	0.046
Germanic	2.350	3.818	0.714	0.090
Less Developed Latin	2.190	3.547	0.713	0.038
More Developed Latin	2.317	3.556	0.743	0.061
Near Eastern	2.064	3.400	0.678	0.011
Nordic	2.077	3.085	0.648	0.042
Tests of means (t-statistic)				
Anglo vs. Asian	-0.87	-0.96	-1.26	-0.79
Anglo vs. Germanic	-1.94 [c]	-2.48 [b]	-1.73	-3.02 [b]
Anglo vs. Less Developed Latin	-1.82 [c]	-3.47 [a]	-2.10 [c]	-0.34
Anglo vs. More Developed Latin	-2.50 [b]	-3.38 [a]	-3.57 [a]	-1.67
Anglo vs. Near Eastern	-0.41	-1.24	-1.22	1.34
Anglo vs. Nordic	-0.82	-0.63	-1.39	-0.76
Asian vs. Germanic	-1.25	-2.07 [c]	-1.01	-2.05 [c]
Asian vs. Less Developed Latin	-0.65	-2.04 [c]	-1.21	0.46
Asian vs. More Developed Latin	-1.44	-2.04 [c]	-2.08 [c]	-0.84
Asian vs. Near Eastern	0.13	-0.68	-0.46	1.32
Asian vs. Nordic	0.13	0.24	-0.20	0.24
Germanic vs. Less Developed Latin	0.84	0.76	0.01	2.57 [b]
Germanic vs. More Developed Latin	0.16	0.72	-0.36	-1.17
Germanic vs. Near Eastern	0.79	0.57	0.23	2.52 [c]
Germanic vs. Nordic	1.35	1.75	0.71	2.61 [c]
Less vs. More Developed Latin	-0.99	-0.05	-0.45	-1.30
Less Developed Latin vs. Near Eastern	0.64	0.42	0.28	1.47
Less Developed Latin vs. Nordic	1.06	2.30 [b]	0.86	-0.32
More Developed Latin vs. Near Eastern	1.06	0.43	0.80	1.82
More Developed Latin vs. Nordic	1.78	2.24 [c]	1.88 [c]	1.15
Near Eastern vs. Nordic	-0.06	0.72	0.32	-3.50 [b]

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table A6

Country-level OLS regressions 2

This table presents the results of OLS regressions examining the relationship between country characteristics and country-specific average diversification levels. The dependent variable is the mean number of different four-digit SIC codes. The independent variables are defined in Table A1. Number of observations is the number of countries included in each regression specification. T-statistics are in parentheses.

	Dependent variable: Average number of 4-digit SIC codes						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	Expected sign
Constant	4.016	2.006	2.483	5.675 [b]	2.580 [c]	2.904	
	(1.69)	(1.64)	(1.26)	(2.75)	(1.87)	(1.44)	
Ln (GNI)	-0.026	-0.008	-0.039	-0.013	0.005	-0.015	
	(-0.18)	(-0.09)	(-0.32)	(-0.12)	(0.06)	(-0.14)	
Ln (Mean net sales)	-0.235	-0.169	-0.111	-0.384	-0.250	-0.198	+
	(-0.87)	(-0.93)	(-0.049)	(-1.58)	(-1.22)	(-0.80)	
Debt / GNP	0.851	0.633 [c]	0.655	1.088 [b]	0.775 [c]	0.773 [c]	- / +
	(1.76)	(1.89)	(1.75)	(2.57)	(2.13)	(1.91)	
GDP growth	2.118 [c]	2.352 [a]	2.565 [b]	2.713 [b]	2.372 [a]	2.553 [b]	-
	(2.02)	(3.42)	(3.01)	(2.97)	(3.55)	(3.08)	
Control rights of the controlling shareholder	2.253 [c]	2.037 [b]	1.986 [b]	1.722 [c]	1.886 [b]	1.855 [b]	- / +
	(2.16)	(3.05)	(2.49)	(1.85)	(2.79)	(2.32)	
Accounting standards	-0.012		-0.006	-0.018		-0.005	-
	(-0.66)		(-0.36)	(-1.16)		(-0.30)	
Analyst activity	0.015	0.016	0.015	0.017	0.014	0.013	-
	(0.64)	(0.94)	(0.78)	(0.87)	(0.90)	(0.70)	
Earnings management		0.045 [a]	0.043 [b]		0.040 [b]	0.039 [b]	+
		(3.94)	(3.32)		(3.13)	(2.70)	
Market Cap / GDP	0.066	0.098	0.107	0.163	0.129	0.137	-
	(0.31)	(0.69)	(0.61)	(0.87)	(0.90)	(0.80)	
English legal origin dummy	-0.286	-0.060	-0.013				-
	(-1.07)	(-0.27)	(-0.51)				
Shareholder rights				-0.193 [b]	-0.072	-0.064	-
				(-2.45)	(-0.83)	(-0.66)	
Uncertainty avoidance	0.004	0.003	0.002	0.003	0.003	0.002	+
	(0.66)	(0.83)	(0.54)	(0.65)	(1.03)	(0.60)	
Adjusted R squared	0.314	0.714	0.646	0.489	0.730	0.664	
No. of observations	23	20	19	23	20	19	

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

Table A7

Country-level OLS regressions 3

This table presents the results of OLS regressions examining the relationship between country characteristics and country-specific average diversification levels. The dependent variable is the fraction of diversified firms. A diversified firm is defined as having reporting more than one two-digit SIC code. The independent variables are defined in Table A1. Number of observations is the number of countries included in each regression specification. T-statistics are in parentheses.

	Dependent variable: Fraction of diversified firms						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	Expected sign
Constant	0.866	0.389	0.408	1.281 [c]	0.519	0.518	
	(1.36)	(1.02)	(0.67)	(2.05)	(1.13)	(0.80)	
Ln (GNI)	-0.009	0.008	0.001	-0.015	0.000	-0.005	
	(-0.23)	(0.26)	(0.04)	(-0.45)	(-0.02)	(-0.14)	
Ln (Mean net sales)	-0.009	-0.018	-0.001	-0.034	-0.026	-0.005	+
	(-0.13)	(-0.31)	(-0.01)	(-0.47)	(-0.38)	(-0.07)	
Debt / GNP	0.074	0.033	0.032	0.129	0.072	0.062	- / +
	(0.57)	(0.32)	(0.28)	(1.01)	(0.60)	(0.48)	
GDP growth	0.395	0.366	0.418	0.539 [c]	0.365	0.430	-
	(1.41)	(1.71)	(1.59)	(1.96)	(1.65)	(1.62)	
Control rights of the	0.354	0.260	0.279	0.245	0.241	0.265	- / +
controlling shareholder	(1.26)	(1.25)	(1.13)	(0.88)	(1.08)	(1.03)	
Accounting standards	-0.003		0.000	-0.005		-0.001	-
	(-0.61)		(-0.08)	(-1.05)		(-0.10)	
Analyst activity	0.003	0.002	0.001	0.004	0.003	0.002	-
	(0.41)	(0.43)	(0.23)	(0.74)	(0.58)	(0.28)	
Earnings management		0.010 [b]	0.010 [b]		0.010 [b]	0.009 [c]	+
		(2.89)	(2.49)		(2.30)	(2.05)	
Market Cap / GDP	-0.011	0.017	0.011	0.009	0.016	0.011	-
	(-0.19)	(0.39)	(0.21)	(0.16)	(0.34)	(0.19)	
English legal origin	-0.099	-0.069	-0.051				-
dummy	(-1.38)	(-1.00)	(-0.64)				
Shareholder rights				-0.040	-0.017	-0.013	-
				(-1.68)	(-0.58)	(-0.43)	
Uncertainty avoidance	0.000	0.000	0.000	0.000	0.000	0.000	+
	(-0.16)	(-0.32)	(-0.34)	(-0.06)	(0.11)	(-0.13)	
Adjusted R squared	0.121	0.434	0.285	0.171	0.397	0.266	
No. of observations	23	20	19	23	20	19	

a Significant at the 0.01 level
b Significant at the 0.05 level
c Significant at the 0.10 level

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